

PERSONALITY FACTORS
IN LEVEL OF ASPIRATION

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CHAPTER I

INTRODUCTION

The general purpose of this study is the investigation of the relationships among level of aspiration, level of academic achievement, and certain personality differences among the institutionalized mentally retarded.

Level of Aspiration

In any appraisal of the level of aspiration as a tool in personality research, two lines of evidence are particularly relevant: those studies testing the reliability of the level of aspiration, both for different tasks and for the same task at different times; and those studies testing the relationship of level of aspiration to personality variables.

Reliability

In the determination of reliability, two measures have been used. One is the goal discrepancy score, or "D-score" - the difference between actual performance on one trial, and expected performance (or "goal") on the next trial. The other measure is the number of shifts of the goal, both with regard to direction (up or down) and antecedent circumstances (success or failure).

In a study utilizing the D-score measure, Frank (1935) reported

correlations of .57 to .75 for two tasks performed a week or more apart. Gould (1938) obtained a median \bar{r} of .46 for tasks during the same session, and of .30 for different sessions. Gardner (1939) obtained a mean \bar{r} of .57 for three tasks. Heathers (1942) obtained a mean \bar{r} of .81 for the same session, and of .62 for different sessions.

Studying variability, or "shifts," of the goal, Rotter (1942) reported correlations of .70 for the frequency of shifts, of .46 for the number of successes (reaching or exceeding the goal), and of .56 for the tendency to raise the goal after success and to lower it after failure.

In general, then, the D-score has been found to be fairly stable, both from task to task and from test to retest. There is some evidence that the amount of goal variability is also a stable measure.

Relations to Personality Variables

As early as the original report by Lewin and Hoppe (1930), speculations were made about possible personality factors involved in the level of aspiration situation, such as "demands on the self" (Lewin and Hoppe, 1930), "ego-protection" (Frank, 1935), the "personality type of the individual," and "personal history of confidence in achievement" (Jucknat, 1937).

Gardner (1939) found positive but non-significant correlations between D-scores and ratings on eight traits culled from the above-cited articles. Gould and Kaplan (1940) also reported non-significant relationships between the D-score, dominance-feeling, and introversion-extroversion.

Somewhat more encouraging is the report by Frank (1935) of correlations of .20 and higher among D-scores, the "wish to do well,"

and the "ability to dismiss failures." McGehee (1940) demonstrated that personal goal settings were both more variable and more accurate than were the objective predictions of another person's performance. Pierce (1954) found that the D-score was significantly and positively related to extroversion, significantly and negatively related to introversion.

Relative height of the D-score and its relation to personality variables have also received attention. Although studies are numerous, the results have not been decisive. One series of studies connects the low positive D-score and a number of "desirable" traits or situations, such as induced success (Sears, 1940), academic success (Sears, 1939, 1941), "good adjustment" (Gruen, 1945), good "integration" (Ax, 1946), and "self-acceptance" (Cohen, 1954). Working with the Taylor Manifest Anxiety Scale, both Matarazzo (1955) and Downing (1957) report a significant positive relationship between low D-scores and low manifest anxiety.

The opposing view connects the lower D-score to less desirable personality traits or situations, such as lack of demonstrated leadership in college (Hanawalt, et al., 1943), non-manual crippling (Rotter, 1947), rigidity (Harway, 1955), and delinquency (Seldon, 1961).

In general, it may be said that the comparison of categories of D-scores (i.e., low, medium, or high) to personality attributes, as in the studies just cited, has led to statistically more significant results than has the attempt to correlate the D-score directly to some facet of personality. However, since the low D-score has been linked to both "desirable" and "undesirable" traits, the nature of the significant relationships is far from clear.

Another target for research has been movement of the goal ("shifts"), and the antecedent circumstances (success or failure) of this movement. As might be expected, the most usual pattern of "shifts" is upward, following success, and downward, following failure. This result was first reported by Jucknat (1937), and confirmed by Festinger (1942). Rotter (1945) suggested that the opposite pattern, i.e., raising after failure and lowering after success, indicated "very high chances of emotional instability."

One series of studies has connected variability of goal-setting to less desirable personality traits. In studies already cited, variability of goal-setting has been related to poor academic achievement by Jucknat (1937), to self-rejection by Cohen (1954), to both academic and induced failure by Sears (1939, 1941), to maladjustment by Gruen (1945), to poor personality integration by Ax (1946), to underevaluation or over-cautious evaluation of the self by Rotter (1947), to problem-solving rigidity by Harway (1955), to delinquency by Seldon (1961), and to authoritarianism by Neems and Scodel (1956).

Several researchers, however, report little or no relationship between personality and variability of goal-setting. In studies employing the Rotter Board, Klugman (1948) could find no relationship between emotional stability and number of shifts, and Jessor and Hess (1958) found that the number of shifts had to be dichotomized before significant personality differences could be related to it.

As to the personality correlates of both the D-score and its variability, experimental results are largely contradictory. The view has been repeatedly expressed, notably by Gould (1938), Yacorzynski (1942), and Lewin, et al. (1944) that present quantitative measures do not

adequately express the complex of experimental factors determining level of aspiration. Seeking, perhaps, an organism with less complex and more uniform experience, recent investigators have turned their attention to the retarded.

Level of Aspiration and the Mentally Retarded

One of the most common assumptions in this area is that the mentally retarded person has had a much more extensive experience with failure than has the person of normal intelligence. On this basis, it is hypothesized that the mentally retarded person would become "sensitized" to experiences of success and failure. In comparison with the intellectually normal person, his reaction to success and failure would be qualitatively similar, but quantitatively greater. A second hypothesis is that the retarded person will seek to minimize experiences of failure by maintaining a low level of aspiration.

The "sensitization" hypothesis is supported by the findings of Davids and White (1958) that the stimulus of failure produces a greater effect upon those who have already experienced threat, rejection, or loss. Heber (1958) compared retarded and normals on a reaction-time task with induced success and failure. Induced success evoked a significantly greater improvement in the performance of the retarded. Under conditions of failure, both groups showed a statistically similar decrement in performance. This result suggested that the retarded are "sensitized" to success, but not to failure. This interpretation is partially supported by Moss (1959), who reports that the retarded were not handicapped in a complex discrimination learning by concern over potential failure.

Both these findings, however, are apparently contradicted by the

work of Gardner (1959). He reports, first, that decremental responses after failure were much more frequent in the retarded group and, secondly, that the retarded displayed an initially lower setting of the level of aspiration. Both results would seem to suggest a "sensitization" to failure, in contrast to the "sensitization" to success found by Heber and by Moss.

A resolution of this contradiction was offered by Bialer (1961). He discovered that, with increasing mental age, the tendency to respond to success, rather than to rewards, becomes statistically significant. It thus becomes possible to explain why Moss, who matched for mental age, found no apparent difference in concern for failure between normals and retarded. Gardner, who did not match for mental age, demonstrated significantly greater concern over failure in the retarded.

Thus, a number of factors have already been shown to be involved in the behavior of the mentally retarded in the level of aspiration situation. Additional relationships, involving goal-setting behavior, personality factors, previous history of success and failure, etc., have been demonstrated for the "normal" population. The present study was designed to test whether such factors are not also differentially active for the retarded in the level of aspiration situation.

Instruments

As previously stated, this study involves academic achievement, level of aspiration, and certain personality measures. The following instruments were used: for academic achievement, the Stanford

Achievement Test, Elementary Battery; for level of aspiration, the Rotter Level of Aspiration Board; for the personality measures, selected cards from Murray's Thematic Apperception Test. The Cards used were 2, 3BM, 4, 6BM, 7BM, and 8BM for males, and 2, 3GF, 4, 6GF, 7BM, and 8BM for females. The personality measures used were the need Achievement scoring of McClelland, et al. (1953, 1958), the need Affiliation measure of Heyns, et al. (1958), and the perceptual system of Dana (1955). Each of these measures is discussed below.

The Stanford Achievement Test

This test is composed of six sub-tests and a battery median score. The manual reports reliability studies based on 240 children drawn at random from 24 school systems. Split-half correlations, Spearman-Brown corrected, were reported for each sub-test at each grade level. The range of the 52 coefficients thus obtained was .66 to .96 with a median of .88. All but 9 of the 52 correlations were at .85 or above.

The Rotter Level of Aspiration Board

Rotter (1942, pp. 413-14) describes the Board as follows:

The board shown is of pine wood, 38 inches long with a square groove down the center. A steel ball is hit along the groove by a stick resembling a miniature billiard cue. Regularly spaced depressions preceding the numbered units and also one placed in the center of each number slow down the speed of the ball and provide a resting place for it when it comes to a stop. The score is dependent on how closely to the central unit the ball comes to rest regardless of direction. The central unit, painted in white with the black number ten on it, counts ten points. The ones on either side count nine points and so on. The other units painted alternately in blue and gray decrease to a value of one point.

Two modifications were adopted. Following Klugman (1947) the

"depressions preceding the numbered units" were omitted. The effect of this modification is to increase the possibility of all subjects' obtaining some score. Second, a large (1-inch) glass marble was substituted for the 1-inch steel bearing used by Rotter. A diagram of the Board can be found in Appendix B.

In discussing the reliability of the Board, Rotter (1942) points out the possible distortion of reliability measures from two sources. First, successive trials are not independent of the preceding ones. Second, different patterns of goal-setting within one subject or between different subjects also distort estimates of reliability. Despite these difficulties, test-retest correlations over a month's interval range from .32 for D-scores to .70 for number of shifts. Odd-even comparisons ranged from .63 for number of successes to .83 for number of shifts.

In a validation study, Rotter (1947) reported that non-manually crippled college students showed significantly lower D-scores than did the physically normal students. "Defeated" prisoners (those with a history of underevaluation or over-cautious evaluation of the self) showed greater variability in goal-setting than did "normal" prisoners (those with a history of keeping aspiration close to performance).

Although not directly related to validation, a study by Klugman (1948) is particularly relevant to the use of the Rotter Board with the retarded. Klugman found that performance on the Board is not influenced by differences in mechanical aptitude, amount of schooling, general mental ability, or mental or chronological age.

The Personality Measures

Three measures were employed: the need Achievement measure of McClelland, et al. (1953, 1958), the need Affiliation measure by Heyns, et al. (1958), and the perceptual system suggested by Dana (1955).

The need Achievement scoring system. Mixed results have been obtained from reliability studies. Atkinson (1950) reported a reliability of .95 over a six-month interval. Although this system was a predecessor of the McClelland system, the two closely resemble each other. Kagan and Moss (1959) reported "better than chance stability" over three-year intervals. Much less encouraging is Birney's report (1959) of a correlation of .20 over a six-month interval, and his conclusion that need Achievement is "highly situational in character."

Inter-rater comparisons have generally proved encouraging. McClelland, et al. (1953) reports that graduate students achieved correlations of .50 to .70 with the "correct" scoring, and later raised these to .90 with moderate experience. Parrish and Rethling-shafer (1954) report an inter-rater correlation of .76.

Attempts to validate the McClelland need Achievement scoring have concentrated on the correlation of fantasy material with some overt behavior, behavior rating, or situation of arousal. Studies by Lowell (1950, 1952) and by Veroff (1950) demonstrate a significant increase in need Achievement scores from neutral to achievement-oriented conditions for high school students, college students, and Navaho boys. Atkinson (1950) found that high need Achievement subjects completed significantly more tasks in an achievement-oriented than in a neutral condition. McClelland, et al. (1953) found a significant positive relationship between achievement scores and college grades for two succeeding semesters. Similarly, Morgan (1953) found that

college students with high need Achievement scores obtained better grades. Feather (1958) reported an increase in both mean D-scores and in "achievement fantasy" from the "relaxed" to achievement-oriented condition.

However, validation studies reporting negative results are virtually equal to those reporting positive results in both number and significance. Morgan (1953) reported that, although college students with high need Achievement scores obtained better grades, the correlations between need Achievement scores and academic achievement ranged from $-.21$ to $.46$, after intelligence was partialled out. Jordan and DeCharms (1959) report that, even with intelligence included in a multiple regression equation, need Achievement measures could not accurately predict academic achievement. Other studies report no relationship between need Achievement scores and academic achievement (Parrish and Rethlingshafer, 1954) or between need Achievement scores and performance measures under achievement-oriented conditions (Reitman, 1958) or between need Achievement scores and rates of verbal learning (Yeager, 1959). Schlicht (1962) hypothesized that high need Achievement subjects would learn "disturbing" material better and retain it longer than would low need Achievement subjects. This hypothesis was not confirmed.

A number of explanations have been proffered for these negative results. Parrish and Rethlingshafer (1954) suggest that their negative results are due to the difference between "real life" (e.g., academic) failure and McClelland's situationally induced failure. McClelland (1958) prefers to explain this difference as the difference between the "anonymity" of group administration versus the individual administration employed by Parrish and Rethlingshafer.

A second explanation relies upon the complexity of whatever motive is aroused in achievement-oriented situations. Clark and McClelland (1956) reported two factors, one increasing and one decreasing from neutral to achievement-oriented conditions. The need Achievement measure appeared to be correlated with the factor decreasing from neutral to achievement-oriented conditions. An increase in achievement motivation, i.e., from neutral to achievement-oriented conditions, decreased inter-individual variability and, consequently, the "decreasing" factor's contribution to the total. Weiss (1961) also found two factors which he described as "judgmental-expectation" and "motivational-aspiration." He believed that only the latter is correlated with measures of achievement motivation. Lazarus, et al. (1957) also felt that need Achievement measures reflect the interaction of motivational and regulative characteristics, and, for this reason, are not a "pure measure of motive."

Lazarus, et al. (1957) also reported a significant difference along age and educational levels in the direction of lower need Achievement scores with increasing age and education. They interpret this result as suggesting that fantasy is characteristic of the less mature person. With maturity, there is greater ego control, with "discharge of motivation along more appropriate levels than fantasy." Also since, in their study, effective performers showed low need Achievement scores, the achievement motive is not necessarily reflected in fantasy, even where external criteria would lead us to expect it.

Broverman, et al. (1960), using job level as an index of "actual achievement" and job ambition for a measure of "achievement striving," found (1) a significant inverse relationship of achievement striving

and need Achievement scores, and (2) no significant relationship between actual achievement and either need Achievement or achievement striving measures. The authors regard these results as support for the "alternative-channels model of Lazarus, et al."

Cole, et al. (1962) further support these interpretations. They report that superior male students showed significantly lower need Achievement scores. In light of these findings, they view achievement fantasy as a substitute for action, released in the laboratory situation.

The need Affiliation scoring system. The literature on measures of affiliation motivation is briefer and more recent than that provided for achievement motivation. The original scale was developed by Shipley and Veroff (1952), who reported agreement of from 88 to 91 percent over 294 stories, and a product-moment r of .93 for subjects and 2 scorers.

A revised scoring system was introduced by Atkinson, et al. (1954). On the basis of their results, these researchers suggested that the basis of affiliation motivation was not solely in the fear of rejection or separation, as Shipley and Veroff (1952) has suggested. Scoring should also include "concern with maintaining and establishing a positive relationship." It is this system, later published in manual form (Heyns, et al., 1958), that is employed in the present study.

A study by French and Chadwick (1956) showed that both "approach" and "avoidance" were increased in a situation designed to arouse affiliation motivation. This result raises the possibility that the "rejection" emphasis of Shipley and Veroff (1952) and the "positive relationship" emphasis of Heyns, et al. (1958) may be complementary,

rather than opposing, aspects of affiliation motivation, and capable of simultaneous arousal.

In reliability studies, Atkinson, et al. (1954) reported agreement of 90 to 95 percent and a product-moment r of .96 for two scorers and 100 stories. Atkinson and Reitman (1956) reported a score-rescore reliability of .89.

In the first validation studies of affiliation motivation, Shipley and Veroff (1952) reported that five of seven categories appeared significantly more often in a group in which fear of rejection had been aroused. In a second phase of this study three of these seven categories appeared significantly more often, and three more approached significance in the same direction, in fraternity-rejected, as compared with fraternity-accepted, freshmen. Atkinson, et al. (1954) reported significant increases in six of ten categories, as well as significantly higher over-all need Affiliation scores for an "aroused" group. Lansing and Heyns (1959) reported a significant positive correlation between over-all need Affiliation scores and number of local telephone calls. Byrne (1961) reported that, among subjects aware of being rated while performing a task, the high need Affiliation subjects rated themselves as significantly more anxious, as compared with the self-ratings of a control group.

Interaction of achievement and affiliation motivation. Since this study is concerned with the simultaneous measurement of both achievement and affiliation motivation, a brief summary of findings on the interaction of these two motives is relevant. A study by Davage (1958), in which both motives were varied in two-person decision groups, suggests a direct relationship between these motives, which can be

demonstrated in overt behavior. French (1956), comparing strength of achievement and affiliation motives with choice of work partner, found evidence for a conflict of choice in subjects high in both motives. This result suggests that, where both motives are aroused, neither achievement nor affiliation motivation is dominant over the other.

Both studies seem to indicate that both needs can be successfully aroused simultaneously, and that the success of arousal can be verified by overt behavior. However, Reitman has obtained less encouraging results. In two studies (1958, 1960), this author reported that, despite the demonstrated effectiveness of motivating instructions, neither motive correlated highly with performance measures under appropriate conditions of arousal. In fact, the later study (1960) reports correlations of up to .62 for need Affiliation and performance measures under achievement arousal conditions. Thus, in contradiction to Davage and to French, Reitman has found either no, or an inverse, relationship.

In summary, the picture presented in the literature for both needs is a confused one. In the case of need Achievement, the McClelland "group" has succeeded in demonstrating both reliability and validity. Later workers have, in general, failed to secure high reliability, or to validate the scale against external criteria. As far as the Affiliation motive is concerned, its nature still appears unsettled. The emphasis by Shipley and Veroff on a basic concern for rejection or separation is supported by the work of Byrne. Atkinson, et al. emphasize "concern for maintaining and establishing a positive relationship," an emphasis supported by the work of Lansing and Heyns. The report by

French and Chadwick that both "approach" and "avoidance" were strengthened in an affiliation arousal situation suggests that both views may be correct. In the area of the need Achievement-need Affiliation interaction just discussed, there is evidence for both a direct and an inverse relationship. In all these areas, a study of the literature reveals no a priori ground for preferring one interpretation or one set of results over the opposing ones.

Several reasons have been offered for these discrepancies. Parrish and Rethlingshafer suggest the discrepancy between laboratory and life. McClelland favors the difference between group and individual administration as an explanatory factor. The complexity of motives - indicated by the factorial studies of Clark and McClelland and of Weiss for need Achievement, and the compound of "approach" and "avoidance" found by French and Chadwick in need Affiliation - is still another possibility. Changes by age and education, as well as the "alternative channels model," have been cited by Lazarus, et al. and supported by the findings of Broverman, et al. and Cole, et al. It is the hope of the present study to utilize the more limited experiences of the retarded, and the restricted incentives of the institutional setting, to investigate these motives in a somewhat more controlled setting.

The perceptual system. In view of the possible relationship of personality function to level of aspiration, achievement needs, and affiliation needs, as well as to academic achievement itself, it was felt that some over-all measure of effective contact with the external world would be a valuable addition to the present study. For this purpose the perceptual system, described by Dana in a series of articles

(1954, 1955, 1956a, 1956b, 1959), was chosen.

The theoretical basis for this system was the proposition that the concept of personality orientation, in the sense of relative resistance to the environment, could both explain and organize much current research (Dana, 1954). At one end of the resistance continuum were those who resisted the environment not at all, those almost entirely "stimulus-bound" or "incorporative." At the other end were those whose every reception of environmental cues was both limited and distorted. "Dysfunction," Dana suggested, occurs as the result of too few or too many cues.

From the concept of environmental resistance, Dana has developed a scoring system, which stresses three concomitants of mental illness: the diminished awareness of reality, the difficulty in organizing experience, and the diminished desire to give an acceptable account of oneself. These three concomitants have been translated, respectively, into: (1) perceptual range, a measure of normality of response in terms of inclusion of popular stimulus properties; (2) perceptual organization, a measure of "approach" in terms of adherence to standard direction; (3) perceptual personalization, a measure of responses rare in the normal but significantly more frequent in the psychopathological population.

A series of studies, each testing both reliability and validity of the method, have been reported by Dana. None of these was concerned with a mentally retarded group. However, since we are concerned here with applying clinical measures to a mentally retarded group and since we are making comparisons within the mentally retarded population rather than comparisons of the mentally retarded against a population with

normal intelligence, it would seem that reports of clinical reliability and validity have some application here.

In the first study of reliability (1955), Dana reports that, on a sample of 75 males, drawn equally from normal, neurotic, and psychotic groups, 3 scorers achieved an over-all agreement of 82 percent. With a sample of 150 adult females, also drawn equally from normal, neurotic, and psychotic groups, 2 scorers achieved agreement ranging from 76 to 94 percent (1956a). In each of the foregoing studies, the criteria for neuroses and psychoses were: (1) hospitalization, (2) a diagnosis of neurosis or psychosis, (3) diagnostic agreement of psychologist and psychiatrist, and (4) independent diagnosis. In a third study (1956b) using 75 subjects each in the categories of normal, outpatient neurotic, and psychotic, 2 scorers achieved an over-all agreement of 89 percent.

Validation studies were also performed upon the above samples. In the first study (1955), perceptual range, personalization, and organization all discriminated significantly between normal, neurotic, and psychotic groups. The second study (1956a) reported significant differentiation of normal, neurotic, and psychotic groups through perceptual range and organization. Perceptual personalization differentiated significantly between normal and total clinical groups. The third study (1956b) secured still sharper differentiation of all three groups by perceptual range and organization, while perceptual personalization continued to differentiate significantly only between the normal and the total clinical groups.

Hypotheses

It is assumed that the greater academic success in the high academic achievement group will produce a pattern of behavior in the level of aspiration situation that is similar to that shown by high academic achieving children of normal intelligence. As previously cited, Sears (1939, 1941) has linked the low D-score and academic success. It may also be assumed that the greater academic success in the high achievement group has played a role in increasing self-acceptance and lowering manifest anxiety. As previously cited, the low D-score has been linked to self-acceptance by Cohen (1954) and to low manifest anxiety by Matarazzo (1955) and by Downing (1957). It is on the basis of these studies that Hypothesis 1a is drawn.

Hypothesis 1a

On the Rotter Level of Aspiration Board, the high academic achievement group will demonstrate a significantly lower D-score, as compared with the low achievement group. The middle achievement group will occupy an intermediate position, not significantly different from either high or low academic achievement groups.

On the assumption again that, in the high academic achievement group, experiences of success and failure have been approximately equal, it is hypothesized that this group will be less "sensitized" to effects of both success and failure. Davids and White (1958) have shown that the effect of failure is greater upon those who have already experienced rejection or loss. Jucknat (1937) has shown that repeatedly failing subjects are more variable in their goal-settings. Rotter (1947) reports a similar finding for "defeated"

prisoners. Sears (1939, 1941) links variability of goal-setting to academic failure. Hypothesis 1b is drawn on the basis of these findings.

Hypothesis 1b

On the Rotter Level of Aspiration Board, the high academic achievement group will demonstrate a lower degree of "sensitization" to success and failure by a significantly lower frequency and smaller range of shifts of goal, as compared with the low academic achievement group. The middle achievement group will occupy an intermediate position, not significantly different from either high or low academic achievement groups.

On the basis that success at, and eventual release from, the institution depends both on concern for general achievement and concern for the maintenance of positive relationships, it is hypothesized that the high academic achievement group will display higher scores for both achievement and affiliation motives.

Hypothesis 2

The high academic achievement group will secure significantly higher scores on both the need Achievement measure (McClelland, et al., 1958) and the need Affiliation measure (Heyns, et al., 1958) as compared with the low academic achievement group. The middle achievement group will occupy an intermediate position, not significantly different from either high or low academic achievement groups.

Finally, on the assumption that the academic success enjoyed by the high academic achievement group is a reflection of constructive contact with reality, facility in organizing experience, and a concern

with giving an acceptable account of oneself, it is hypothesized that the high academic achievement group will give significantly greater evidence of these characteristics than will the low academic achievement group on the Dana scoring of the TAT.

Hypothesis 3

In the Dana TAT scoring, the high academic achievement group will obtain significantly higher scores in perceptual range and perceptual organization, and significantly lower scores in perceptual personalization, as compared with the low academic achievement group. The middle achievement group will occupy an intermediate position in the distribution of scores, not significantly different from either high or low academic achievement groups.

CHAPTER II

SUBJECTS AND PROCEDURE

Subjects

Forty-five retarded subjects were selected from the total population of 54 in the "departmental" (primary) grades of the white academic school at Sunland Training Center, Gainesville, Florida. These 45 subjects were divided into "high," "middle," and "low" academic achievement groups on the basis of the over-all battery median score attained on the Stanford Achievement Test. The "high" group was composed of those 14 students showing the highest positive deviation from the national norm for their respective grades. The "middle" group was composed of 15 students of those showing the smallest deviation, regardless of sign, from the national norm of their respective grades. The "low" group was composed of those 15 students showing the highest negative deviation from the national norm for their respective grades. The range of deviation from the national norm was from 0.8 to 2.2 grades for the "high" group, from 0.2 to -0.2 grades for the "middle" group, and from -.03 to -1.2 grades for the "low" group. In terms of mental age, the mean mental age was 10.32 years, with a standard deviation of 2.74 for the "high" group, 10.61 years, with a standard deviation of 2.04 for the "middle" group, and 11.59, with a standard deviation of 2.42 for the "low" group, and 10.84, with a

standard deviation of 2.48 for the over-all experimental sample.

Following the assignment to groups, the groups were then tested for randomness of distribution upon the following variables: Stanford Binet intelligence quotient, chronological age, age at which institutionalization occurred, total time of institutionalization, school grade, and diagnostic category. The first four of these variables were tested by simple analysis of variance, as described in McNemar (1955). Because of the discrete nature of the variables and the limited number of categories employed, Chi-square was used to test the distribution of achievement groups into school grades and diagnostic categories.

Statistical details of these tests are presented in Appendices F, G, H, and I. Successful matching of the three achievement groups was achieved for all variables except school grade. Inspection of the data (Appendix H) indicates that the chief contributor to this significant difference is the fact that the high academic achievement group is drawn predominantly from the lower grades, while the middle and low academic achievement groups are heavily "loaded" with students from the upper grades. To investigate the possibility of inaccurate grade placement, a simple analysis of variance was made for battery median grade scores by academic achievement groups. The results (Appendix I) indicate that the significant discrepancy between expected and actual distribution of achievement groups by grades is not the result of inaccurate grade placement.

Procedure

At the beginning of the testing period, the method of achieving

a score by using the "cue" to propel the marble down the center groove was explained. The subject was then encouraged to take five practice trials. The instructions were read, and the subject was encouraged to ask questions. A second series of five practice trials was given, duplicating exactly the procedure used in the experimental trials. An estimate of total score ("goal") was procured from the subject and recorded in his full view. The trials were then started. At the end of each trial, the experimenter pointed out to the subject the score obtained on that particular trial, and informed the subject of the score thus far accumulated. At the end of the set of five trials, the total score obtained by the subject for the five trials ("performance score") was recorded. The score according to Rotter's method was calculated aloud, explained, written in clear view of the subject, and the subject was encouraged to ask questions. Following this single practice set of five trials, the experimental trials were begun, and were continued in the manner just described until 20 sets of five trials each had been given. After a five-minute rest period, the Thematic Apperception Cards were given. As previously mentioned, these were Cards 2, 3BM, 4, 6BM, 7BM, and 8 BM for males, and 2, 3GF, 4, 6GF, 7BM, and 8 BM for females. The instructions used were those offered by Murray (1943, p. 4) as "suitable for children, for adults of little imagination or intelligence, and for psychotics." These instructions are reproduced in Appendix E. The protocols were recorded as near to verbatim as possible.

The protocols were rated individually by three raters. Two raters, those later labelled (1) and (3), were male, holders of graduate degrees in psychology, and had more than one year of

experience in psychological services to the institutionalized mentally retarded. Rater (2) was female, a holder of a graduate degree in educational psychology, and had had eighteen months teaching experience with the educable retarded in a public school setting. At the time that the ratings were performed, all three raters had had no clinical experience in the use of the Thematic Apperception Test. McClelland, et al. (1953) have reported that graduate students in psychology, with no specified psychological experience, achieved correlations of .50 to .70 with the "correct" scoring, and improved to .90 with moderate experience.

Instruction was given by the experimenter in the achievement, affiliation, and perceptual scoring systems, and two sample stories drawn from Atkinson (1958) were scored for practice. For reference during scoring, each rater was given a manual for the achievement and affiliation scoring systems, abridged from those provided in Atkinson (1958). Copies of the achievement and affiliation manuals are included in the Appendices. Definitions involved in the perceptual system were incorporated in the rating form. During the process of scoring, frequent regular contacts were made between experimenter and raters to resolve ambiguities in the scoring system. No indication of the nature of the sample was given to the raters.

CHAPTER III

RESULTS

In this chapter, results of the experiment will be discussed in four sections: data from the level of aspiration task, data from the measures of achievement and affiliation motivation in terms of frequencies placed in the various categories, data from the measures of achievement and affiliation motivation in terms of various weighted scoring systems to be discussed later, and data from Dana's perceptual scoring system.

The Level of Aspiration Task

A number of definitions may be useful in understanding the following discussion. The term "goal" is used to refer to the total score the subject says he will make on the following set of five trials. The term "performance score" refers to the score actually attained on a set of five trials. The term "Rotter score" refers to the Rotter method of calculating the score with which the subject will be credited. Under this method, if the subject surpassed this previously stated goal, the points awarded are the amount of the stated goal. If the subject's attained (performance) score falls below the previously announced goal, two points are deducted from the performance score for every point by which the performance score fell below the goal. As noted previously, the term "D-score," an abbreviation for

"goal discrepancy score," refers to the difference between attained score on the previous trial ("performance score") and expected score ("goal") on the next trial. In the present study, it will be noted that the "attained score on the previous trial" may be either that termed "performance score" above, or that described as the "Rotter score." Thus, it is possible to calculate D-scores as the discrepancy between the "goal" and the preceding "performance score," or between the "goal" and the preceding "Rotter score" as described above. The former will be termed "performance D-score," and the latter "Rotter D-score,"

We shall first consider the analysis of the "performance D-scores." Table 1 presents the analysis of variance for these data, as treated by Lindquist Type I analysis (Lindquist, 1953). As will be noted, a significant differentiation was obtained between academic achievement groups.

Fisher t-tests were employed in further analysis of the between-groups differences. These results, plus group means, are presented in Table 2. Although a highly significant separation was obtained in two of the three comparisons, the size of the group means indicates that the direction of this trend is exactly opposite that predicted by the hypothesis. The highest mean D-score was obtained by the high, and the lowest mean D-score was obtained by the low, academic achievement group. As hypothesized, the middle achievement group occupied an intermediate position, not significantly different from either high or low achievement groups. However, Hypothesis 1a was contradicted in its most important respect, the direction of group differences.

TABLE 1

ANALYSIS OF VARIANCE FOR PERFORMANCE D-SCORES

Source	SS	df	MS	F
Between subjects	49,604.53	44		
Groups	7,989.28	2	3,994.64	4.031 ^a
Error	41,615.35	42	990.84	
Within subjects	35,546.00	810		
Trials	426.70	18	23.71	0.055
Groups x trials	2,513.79	36	69.83	0.162
Error	32,605.51	756	431.29	
Total	85,150.53	854		

^a_p less than .05

TABLE 2

GROUP MEANS AND t-TEST RESULTS FOR PERFORMANCE
D-SCORES AND ACHIEVEMENT GROUPS

Achievement Group	Mean
1. High achievement	17.41
2. Middle achievement	10.80
3. Low achievement	8.50

	1.	2.	3.
1.		3.799 ^a	5.121 ^a
2.			1.321
3.			

^a_p less than .001

Note: Marginal numbers refer to academic achievement groups as listed directly above. Numbers in the body of the table are obtained values for t.

In order to give some indication of the trend of performance D-scores over trials for the three achievement groups, curves for the differences between all combinations of two achievement groups were treated by the method of orthogonal contrasts, as described by Grant (1956). The data for this comparison are presented in Table 3. The linear component is highly significant for all three curves, indicating a highly significant tendency for differences between achievement groups to change at a constant rate. With only three exceptions, however, all higher order functions tested proved to be equally significant. Since the curves being analyzed are difference curves, the significance of the higher-order functions suggests an oscillatory increase and decrease of differences between achievement group mean performance D-scores around the central linear tendency already cited. The possible psychological significance of this oscillation will be discussed later. With regard to the linear trend, Table 4 indicates that both high and middle academic achievement groups increase their mean performance D-score over trials. The increase for the middle achievement group is much more marked. The mean performance D-score for the low achievement group falls noticeably over trials.

Since a D-score represents a difference between a goal and a previous performance score, further analysis was done on both performance scores and goal-settings in order to demonstrate the basis for the significant difference in D-scores. The variance table for performance scores can be found in Table 5, and that for goals in Table 6. In neither case was a significant difference between groups obtained. The larger between-groups variance ratio obtained for performance scores suggests a stronger tendency toward group differentiation in performance

TABLE 3

ANALYSIS OF VARIANCE FOR ORTHOGONAL CONTRAST OF CURVES FOR
DIFFERENCES BETWEEN ACHIEVEMENT GROUPS ON D-SCORES
CALCULATED FROM PERFORMANCE SCORES

Source	SS	df	MS	F
1. High-middle achievement				
A. Linear	112.74	1	112.74	50.33 ^a
B. Quadratic	137.56	1	137.56	61.41 ^a
C. Cubic	105.91	1	105.91	47.28 ^a
D. Quartic	0.46	1	0.46	0.20
2. High-low achievement				
A. Linear	35.06	1	35.06	16.99 ^a
B. Quadratic	0.97	1	0.97	0.43
C. Cubic	1,804.26	1	1,804.26	805.47 ^a
D. Quartic	531.02	1	531.02	237.06 ^a
3. Middle-low achievement				
A. Linear	122.75	1	122.75	54.80 ^a
B. Quadratic	167.27	1	167.27	70.21 ^a
C. Cubic	416.01	1	416.01	183.04
D. Quartic	0.00002	1	0.00002	0.0000

^ap less than .001

TABLE 4

MEAN PERFORMANCE D-SCORES BY FIRST AND LAST TRIAL
FOR THE THREE ACHIEVEMENT GROUPS

	First Trial	Last Trial
High achievement group	11.93	12.86
Middle achievement group	11.00	13.53
Low achievement group	10.40	6.40

TABLE 5

ANALYSIS OF VARIANCE FOR PERFORMANCE SCORES

Source	SS	df	MS	F
Between subjects	46,397.85	44		
Groups	2,544.80	2	1,272.40	1.219
Error	43,853.05	42	1,044.12	
Within subjects	33,846.15	855		
Trials	385.71	19	20.30	0.51
Groups x trials	1,957.16	38	51.50	1.30
Error	31,503.28	798	39.48	
Total	80,244.00	899		

TABLE 6
ANALYSIS OF VARIANCE FOR GOALS

Source	SS	df	MS	F
Between subjects	104,436.00	44		
Groups	2,768.33	2	1,384.16	0.572
Error	101,667.67	42	2,420.65	
Within subjects	95,679.45	855		
Trials	3,721.21	19	195.85	1.738
Groups x trials	2,047.24	38	53.87	6.478
Error	89,911.00	798	112.67	
Total	200,115.45	899		

scores than on goal-settings. The lack of significance in both cases, however, can be interpreted as showing that the significant difference in performance D-scores is not a function of a significant difference between academic achievement groups in either performance scores or goal-settings.

The basis for the between-groups difference in performance D-scores is made clear by Table 7. Here, we see that all groups showed a definite "conservative" tendency, i.e., setting mean goal levels well below mean performance. This "conservatism" is most marked in the high academic achievement group, and becomes much less evident as we move toward the low achievement group.

Table 8 presents the variance tables obtained for D-scores calculated from Rotter scores ("Rotter D-scores"). It can be quickly seen that low variance ratios were obtained for all three variance components. For this reason, further analysis of these data was not attempted.

In summary, then, highly significant between-groups differences were demonstrated for performance D-scores. Goal choices and Rotter D-scores showed only chance differentiation of groups. Since the Rotter method of calculating the score with which the subject is credited depends upon the previous goal-setting, the mean Rotter D-score will probably not vary significantly from group to group if the mean goal-setting does not also vary significantly.

Examination of the relationship between goal-settings and performance scores for the three academic achievement groups showed that the difference in performance D-scores was not the result of any significant difference between groups either in performance scores

TABLE 7

MEAN GOALS PERFORMANCE SCORES AND FISHER t-TEST
RESULTS FOR THE THREE ACHIEVEMENT GROUPS

Group	Mean Performance Score	Mean Goal	<u>t</u>
High achievement	30.34	16.97	1.003
Middle achievement	30.65	23.81	0.514
Low achievement	26.90	22.73	0.313

TABLE 8

ANALYSIS OF VARIANCE FOR ROTTER D-SCORES

Source	SS	df	MS	F
Between subjects	26,916.63	44		
Groups	276.97	2	138.485	0.214
Error	26,639.66	42	634.278	
Within subjects	65,907.21	810		
Trials	524.53	18	29.141	0.349
Groups x trials	2,334.81	36	64.586	0.778
Error	63,047.87	756	83.397	
Total	92,823.84	854		

or goal-settings. Rather, its basis lay in the fact that the high academic achievement group characteristically set goals considerably below previous performance. This tactic was much less apparent in the low achievement group. In choice of goals, then, the high achievement group "played it safe" to a much greater extent than did the low achievement group.

Hypothesis 1b postulated a significantly lower frequency and smaller range of shifts of the goal level for the high as compared with the low academic achievement group. The middle group, it was again hypothesized, would occupy an intermediate position on both these variables, not significantly different from either high or low academic achievement groups.

Two methods of analysis were employed for this data. Because of their categorical nature as well as the skew of the distribution, the data for the frequency of shifts were evaluated by the Kruskal-Wallis one-way analysis of variance ("H"), as described in Siegel (1956). Achievement group medians, ranges, and values for "H" are presented in Table 9. In that table, "S" and "F" refer to success or failure on the preceding trial, i.e., reaching or failing to reach the expressed goal. The symbols, "+," "-", and "0," refer to raising, lowering, or no change in goal-setting from the previous trial. Two findings approach significance. One is the trend for the number of raises following success to increase with the lower achievement groups. The second is the tendency for the high achievement group to lower its goal-setting after success. Since the middle achievement group displays fewest lowerings of the goal after success, and the low academic achievement group is intermediate in this respect, the latter

TABLE 9

MEDIANS, RANGES, AND "H" VALUES FOR TYPE AND FREQUENCY
OF SHIFT FOR THE THREE ACHIEVEMENT GROUPS

Type of Shift	Achievement Group	Median	Range	H
S+	High	7.67	5-10	5.430 ^a
	Middle	7.75	1-11	
	Low	9.28	0-11	
F-	High	0.75	0-8	4.406
	Middle	4.25	0-9	
	Low	2.25	0-8	
S-	High	5.00	2-9	5.627 ^a
	Middle	1.40	0-11	
	Low	2.25	0-8	
F+	High	0.75	0-6	0.555
	Middle	1.57	0-2	
	Low	1.20	0-6	
S _o	High	0.75	0-9	0.1287
	Middle	0.83	0-3	
	Low	0.83	0-9	
F _o	High	0.53	0-1	2.902
	Middle	0.68	0-8	
	Low	0.58	0-2	

^ap greater than .05

trend is not as consistent as in the former. Both "tendencies" are consistent with the observation already made concerning the "conservatism" in goal estimation shown by the high achievement group.

The second aspect of this hypothesis concerns the size of shifts following success and failure. On the assumption, supported by the literature (p. 4), that the usual tendency is for subjects to raise the goal after success, and to lower it after failure, the amounts by which the goal was lowered after success and raised after failure were subtracted in computing the respective totals. An analysis of variance for size of shifts after success is presented in Table 10. It will be noted that the between-groups variance ratio approaches, but does not attain, significance. For additional information on the nature of the differences in size of shifts following success, achievement group means are presented in Table 11. The fact that the high academic achievement group mean is lower than the means for the other groups supports, though not significantly, the hypothesized smaller size of shift for the high, as compared with the low, achievement group. It also supports the concept of "conservatism" in the high achievement group, already discussed in other contexts. The middle group displays the largest mean shift in response to success, rather than occupying the hypothesized intermediate position.

Results of the analysis for size of shifts following failure are presented in Table 12. It will be noted that significance was not approached for groups, trials, or interaction. Accordingly, further analysis was not attempted.

At this point, then, we may summarize the level of aspiration data as follows. Hypothesis 1a postulated a significantly lower D-score

TABLE 10

ANALYSIS OF VARIANCE FOR SIZE OF SHIFTS FOLLOWING SUCCESS

Source	SS	df	MS	F
Between subjects	3,843.51	44		
Groups	492.65	2	246.32	3.087 ^a
Error	3,350.86	42	79.78	
Within subjects	25,118.11	810		
Trials	962.75	18	53.49	1.791
Groups x trials	1,567.34	36	43.54	1.458
Error	22,588.01	756	29.87	
Total	28,961.62	854		

^a_p less than .10

TABLE 11

MEANS FOR GROUPS AND FISHER t-TEST RESULTS
FOR SIZE OF SHIFTS FOLLOWING SUCCESS

<u>Group</u>	<u>Mean</u>
High	1.182
Middle	3.022
Low	2.245
<u>Groups</u>	<u>t</u>
High vs. middle	1.030
High vs. low	0.599
Middle vs. low	0.438

TABLE 12
ANALYSIS OF VARIANCE FOR SIZE OF SHIFTS FOLLOWING FAILURE

Source	SS	df	MS	F
Between subjects	2,874.60	44		
Groups	355.18	2	177.59	2.960
Error	2,519.42	42	59.99	
Within subjects	23,122.68	810		
Trials	630.37	18	35.02	1.245
Groups x trials	1,234.06	36	34.28	1.219
Error	21,258.25	756	28.12	
Total	23,997.28	854		

for the high academic achievement group. A significant difference between achievement groups, opposite in direction to that hypothesized, was found for "performance D-scores," or D-scores calculated from performance scores. Significance was not obtained between achievement groups for the "Rotter D-scores," or D-scores calculated from Rotter scores. Although there was no significant difference between groups in goals or performance scores, a contributory factor to the size of performance D-scores was the much lower mean goal-setting relative to mean performance score in the high academic achievement group. Trend analysis indicated that the difference in performance D-scores between achievement groups oscillated considerably around a basic linear trend.

Hypothesis 1b postulated a significantly smaller frequency and size of shifts of the goal level for the high, as compared with the low, academic achievement group. In the data on frequency of shifts, two tendencies were observed: (1) a tendency for the number of raises of goal level following success to increase with lower achievement groups; (2) a tendency for the high academic achievement group to lower the goal level following success. No significant between-groups differences were obtained for the size of shifts after either success or failure. A tendency was observed toward smaller mean size of shift after success for the high achievement group. All three tendencies discussed above offer support, though not significant support, for "conservatism" in goal-setting for the high achievement group.

Measures of Achievement and Affiliation Motivation by Frequencies and Categories

Hypothesis 2 states that the "high academic achievement group will secure significantly higher scores on both the need Achievement

measure (McClelland, et al., 1958) and the need Affiliation measure (Heyns, et al., 1958) as compared with the low academic achievement group. The middle achievement group will occupy an intermediate position, not significantly different from either high or low academic achievement groups."

In this section, we will be considering the distribution of scores by achievement groups into the various categories of the achievement and affiliation scoring systems. This procedure was included to bring to light any differences between academic achievement groups in particular categories which the over-all need Achievement and need Affiliation scores might conceal.

In order to accomplish this, it was necessary to subdivide both achievement and affiliation scoring categories into the classifications of "main" and "subordinate." The authors of both systems state that the categories of Achievement Imagery and Affiliation Imagery, as defined by them (Cf. Appendices C and D) must be positively scored before additional categories can be scored. A simultaneous statistical treatment of both the "imagery" and the "additional" categories would violate the assumption of independence of scores. Accordingly, for the achievement scoring system, analyses of the "main" categories (Achievement Imagery, Achievement Thema, Doubtful Imagery, and Unrelated Imagery) were made separately from the dependent "subordinate" categories. In the same way, the "main" categories of the affiliation scoring system (Affiliation Imagery, Affiliation Thema, Doubtful Imagery, and Unrelated Imagery) were analyzed separately from the "subordinate" categories. We shall first consider the scores for the "main" categories of the achievement scoring system.

Achievement Motivation: Main Categories

The data for the "main" categories of achievement motivation were subjected to an arcsin transformation and a Lindquist Type VI analysis of variance. The results from this analysis are presented in Table 13. The most important single point in this table is that the between-groups variance ratio is well below the value required for significance. Hypothesis 2 must be rejected for the "main" categories of achievement motivation.

Three other variance ratios proved highly significant: raters, categories, and the raters x categories interaction. Since the problem of raters is a consistent one, discussion of the implications of the significance of the raters component is deferred until a unified presentation can be made.

An examination of mean scores for the "main" categories (Table 14) indicates that a significantly larger proportion of the stories contained little or no expression of achievement motivation. Furthermore, an examination of mean ratings by raters and categories (Appendix J) shows that the disparity between raters steadily decreases from Achievement Thema through Achievement Imagery and Doubtful Imagery to Unrelated Imagery. Beyond the self-evident fact that absence is more easily agreed upon than is presence, it suggests a definite amount of agreement among raters upon the lack of demonstrable arousal of achievement motivation. The problem of arousal will be discussed later.

Achievement Motivation: Subordinate Categories

These data were also treated by arcsin transformation and Lindquist Type VI analysis. The variance table (Table 15) for the

TABLE 13

ANALYSIS OF VARIANCE FOR THE "MAIN" CATEGORIES OF THE
McCLELLAND ACHIEVEMENT SCORING SYSTEM

Source	SS	df	MS	F
Between subjects	2,701.11	44	61.38	
Groups	49.22	2	24.61	0.39
Error	2,652.89	42	63.16	
Within subjects	418,571.02	495	845.60	
Raters	2,004.75	2	1,002.37	22.30 ^a
Categories	172,057.24	3	57,352.41	171.93 ^a
Raters x categories	48,647.45	6	8,107.91	14.11 ^a
Raters x groups	555.14	4	13.78	0.31
Categories x groups	1,511.25	6	251.87	0.77
Raters x categories x groups	3,686.37	12	307.21	0.53
Error	190,608.82	462	412.57	
Error ₁	3,774.71	84	44.94	
Error ₂	42,028.47	126	333.59	
Error ₃	144,805.64	252	574.63	
Total	421,273.13	539		

^a_p less than .001

TABLE 14

MEANS AND t-TEST RESULTS FOR THE "MAIN" CATEGORIES OF THE
McCLELLAND ACHIEVEMENT SCORING SYSTEM

Category		Mean			
1.	Achievement Thema	4.88			
2.	Achievement Imagery	11.88			
3.	Doubtful Imagery	30.91			
4.	Unrelated Imagery	50.75			
		1.	2.	3.	4.
1.			1.818	6.761	11.91 ^a
2.				4.945	9.841 ^a
3.					5.155 ^a
4.					

^a_p less than .001

Note: Marginal numbers indicate the categories as listed directly above. Numbers in the body of the table are obtained values for t.

TABLE 15

ANALYSIS OF VARIANCE FOR THE "SUBORDINATE" CATEGORIES
OF THE McCLELLAND ACHIEVEMENT SCORING SYSTEM

Source	SS	df	MS	F
Between subjects	26,909.01	44	611.57	
Groups	91.17	2	45.58	0.95
Error	26,817.84	42	638.52	
Within subjects				
Raters	95,331.19	765	1,246.16	14.86 ^a
Categories	12,022.30	2	6,011.15	17.99 ^a
Raters x categories	5,870.11	5	1,174.02	5.18 ^a
Raters x groups	3,050.87	10	305.09	0.34
Categories x groups	553.71	4	138.43	1.01
Raters x groups x categories	763.69	20	38.18	0.65
Error	72,412.62	714	101.42	
Error1	33,984.21	84	404.57	
Error2	13,705.35	210	65.26	
Error3	24,723.06	420	58.86	
Total	122,240.20	809		

^a_p less than .001

"subordinate" categories is quite similar to that presented for the "main" categories, in that the variance ratio for groups proved insignificant, while highly significant ratios were obtained for the raters, categories, and raters x categories interaction components. The hypothesized significant differences between academic achievement groups (Hypothesis 2) must be rejected for the "subordinate," as well as for the "main" categories.

Despite the highly significant difference between raters, several areas of agreement exist. If the "subordinate" categories are arranged in order of magnitude of mean score (Table 16) it will be seen that the more "objective subordinate" categories are, without exception, in the upper, more numerous, half of the table, while the more "affective subordinate" categories are significantly less numerous. An examination of the raters x categories interaction (Appendix K) indicates that the primary cause for the significance of the interaction is that agreement between raters sharply increases for the more "affective subordinate" categories, notably Affective States, Need for Achievement, and Nurturant Press. In summary, not only are the "affective subordinate" categories significantly less numerous, but there is significantly greater agreement among raters upon this lack of prominence, than upon other subordinate categories.

Summarizing, at this point, the foregoing data on both "main" and "subordinate" categories of the McClelland achievement scoring system, it can be said that the hypothesis of significant differences between achievement groups cannot be accepted for either "main" or "subordinate" categories.

In all analyses thus far, the variance ratio for categories

TABLE 16

CATEGORY MEANS AND t-TEST RESULTS FOR THE "SUBORDINATE"
CATEGORIES OF THE McCLELLAND ACHIEVEMENT SCORING SYSTEM

Category		Mean			
1. Instrumental Activity		20.89			
2. Anticipatory Goal States		19.08			
3. Obstacles		11.17			
4. Affective States		9.78			
5. Need for Achievement		9.05			
6. Nurturant Press		3.22			
1.	2.	3.	4.	5.	6.
1.	2.908 ^a	14.497 ^b	16.577 ^b	17.662 ^b	26.644 ^b
2.		11.588 ^b	13.667 ^b	14.754 ^b	23.456 ^b
3.			2.080 ^a	3.165 ^a	11.868 ^b
4.				1.085	9.787 ^b
5.					8.702 ^b
6.					

^a_p greater than .001

^b_p less than .001

Note: Marginal numbers represent categories listed directly above. Numbers in the body of the table are obtained values for t.

has been consistently highly significant. This is the result of higher scores awarded by all raters to particular categories. For the "main" categories, these were of little or no achievement imagery. For the "subordinate" categories, these were the categories involving the more "objective" aspects of achievement motivation scoring. The consistently significant interaction of raters and categories proved to be the result of the sharp decrease in inter-rater scoring disparity for these same "objective" categories.

Affiliation Motivation: Main Categories

Hypothesis 2 also states that the high academic achievement group will secure significantly higher scores for affiliation motivation, as compared with the low achievement group. The system used in the present study for the scoring of affiliation motivation is that devised by Heyns, et al. (1958). This system is quite similar to the McClelland achievement scoring system, employing similar concepts and scoring rules. Since this scoring system requires that "Affiliation Imagery" be scored before the "subordinate" categories can be scored, separate analyses were again made for both "main" and "subordinate" categories.

The data for the "main" categories of affiliation motivation (Affiliation Thema, Affiliation Imagery, Doubtful Imagery, and Unrelated Imagery) were subjected to an arcsin and the Lindquist Type VI analysis of variance (Table 17). Once again, the crucial test of the hypothesis, the variance ratio for groups, proved insignificant. A high degree of significance was found for the raters, categories, raters x categories interaction, and raters x groups interaction components.

TABLE 17

ANALYSIS OF VARIANCE FOR THE "MAIN" CATEGORIES OF THE
HEYNS AFFILIATION SCORING SYSTEM

Source	SS	df	MS	F
Between subjects	3,681.98	44	83.68	
Groups	59.09	2	29.55	0.34
Error	3,622.89	42	86.26	
Within subjects	258,715.11	495	522.66	
Raters	2,548.49	2	1,274.25	227.95 ^a
Categories	59,884.72	3	19,961.57	33.09 ^a
Raters x categories	39,419.67	6	6,569.95	21.55 ^a
Raters x groups	230.43	4	57.61	10.31 ^a
Groups x categories	1,207.04	6	201.17	0.33
Raters x groups x categories	2,126.45	12	177.20	0.58
Error	153,298.31	462	331.81	
Error ₁	469.81	84	5.59	
Error ₂	76,010.22	126	603.26	
Error ₃	76,818.26	252	304.83	
Total	262,397.09	539		

^a_p less than .001

The mean score awarded for Affiliation Imagery (Table 18) was significantly higher than either Doubtful Imagery or Affiliation Thema, and insignificantly smaller than the mean score for Unrelated Imagery. These results suggest that the experimental situation was more effective in the arousal of affiliation motivation than in the arousal of achievement motivation, but not to the point that affiliation motivation became a predominant theme, or to the point of achieving differentiation among groups. It is relevant to note, in this context, that the least over-all disparity of mean scores occurs in the category of Affiliation Imagery.

The primary contributions to the significance of the raters x categories interaction (Appendix L) are the differing patterns of convergence of the mean scores for raters in the separate categories. For example, the most similar mean scores in the category of Affiliation Thema are those of Raters (1) and (2). For the category of Affiliation Imagery, the most similar mean scores are those for Raters (2) and (3), while for Doubtful Imagery and Unrelated Imagery, the most similar mean scores are those for Raters (1) and (2) and (1) and (3), respectively.

The primary contribution to the significance of the raters x groups interaction (Appendix M) is the fact that mean scores for raters tend to converge from "high" to "low" academic achievement groups.

In summary, analysis of variance for the "main" categories of Heyns' affiliation motivation scoring system indicates that the hypothesized significant difference between academic achievement groups has not been found. Hypothesis 2 must be rejected for the "main"

TABLE 18

MEANS AND t-TEST RESULTS FOR THE "MAIN" CATEGORIES FOR THE
HEYNS AFFILIATION MOTIVATION SCORING SYSTEM

Category		Mean			
1. Affiliation Thema		10.01			
2. Affiliation Imagery		33.53			
3. Doubtful Imagery		26.81			
4. Unrelated Imagery		37.81			
	1.	2.	3.	4.	
1.		7/866 ^a	5,619 ^a	9,227 ^a	
2.			2,247	1,361	
3.				3,609 ^a	

^a_p less than .001

Note: Marginal numbers represent categories as listed directly above. Numbers in the body of the table are obtained values of t.

categories of affiliation motivation. Despite the highly significant difference between raters, analysis of the highly significant raters x categories and raters x groups interactions indicates less disparity for some categories and groups, and, consequently, more communality of judgment than the highly significant variance ratio for raters might lead us to infer.

Affiliation Motivation: Subordinate Categories

The analysis of variance for these data is presented in Table 19. Once again, an insignificant variance ratio for groups leads us to reject the hypothesis for the "subordinate" affiliation categories. Highly significant variance ratios were obtained for raters, categories, and the raters x categories and raters x categories x groups interactions. Since these findings are familiar in nature and of coincidental interest, they will be only briefly discussed.

The significance of the interactions is primarily due to the prominence of Instrumental Activity and Affective States, both in over-all ratings (Table 20) and across academic achievement groups (Table 21), and the attendant great disparity in mean ratings (Appendix N), as opposed to the very low mean score awarded for Nurturant Press, both over-all (Table 20), and across achievement groups (Table 21), and the greatly lessened disparity in its rating (Appendix N).

Thus, once again, the hypothesized differentiation of academic achievement groups was not obtained. Although strikingly high significance has been obtained for other variance components, these findings are neither germane to the hypothesis under test, nor can they be explained in a study with the focus of the present one.

TABLE 19

ANALYSIS OF VARIANCE FOR THE "SUBORDINATE" CATEGORIES
OF THE HEYNS AFFILIATION MOTIVATION SCORING SYSTEM

Source	SS	df	MS	F
Between subjects	42,068.90	44	9,651.11	
Groups	57.41	2	28.70	0.29
Error	42,011.49	42	1,000.27	
Within subjects	147,216.71	765	192.44	
Raters	3,151.33	2	1,575.67	6.18 ^a
Categories	28,264.15	5	5,652.83	26.82 ^a
Raters x categories	17,414.95	10	1,741.50	30.96 ^a
Raters x groups	657.66	4	164.44	0.64
Categories x groups	5,005.45	10	500.54	2.37
Raters x categories x groups	3,392.68	20	169.63	3.02 ^a
Error	82,973.99	714	125.03	
Error1	21,406.36	84	254.84	
Error2	44,246.24	210	210.70	
Error3	23,620.48	420	56.24	
Total	189,285.61	809		

^a_p less than .001

TABLE 20

MEANS AND t-TEST RESULTS FOR THE "SUBORDINATE" CATEGORIES OF
HEYNS AFFILIATION MOTIVATION SCORING SYSTEM

Category		Mean				
1. Instrumental Activity		16.14				
2. Anticipatory Goal States		12.21				
3. Obstacles		14.20				
4. Affective States		19.44				
5. Need for Affiliation		15.24				
6. Nurturant Press		0.714				
1.	2.	3.	4.	5.	6.	
1.	2.229 ^a	1.096	1.864	0.508	8.717 ^b	
2.		1.124	4.085 ^b	1.712	6.497 ^b	
3.			2.960 ^c	0.587	7.621 ^b	
4.				2.373 ^d	10.582 ^b	
5.					8.209 ^b	
6.						

^a_p less than .05

^b_p less than .001

^c_p less than .01

^d_p greater than .02

Note: Marginal numbers represent categories as listed directly above. Numbers in the body of the table are obtained values for t.

TABLE 21

MEANS BY ACHIEVEMENT GROUPS AND CATEGORIES FOR THE
 "SUBORDINATE" CATEGORIES OF THE HEYNS AFFILIATION
 MOTIVATION SCORING SYSTEM

Category	"High" Group	"Middle" Group	"Low" Group
Instrumental Activity	10.28	17.83	20.31
Anticipatory Goal States	11.34	11.77	13.53
Obstacles	16.52	13.84	17.23
Affective States	24.15	17.22	16.96
Need for Affiliation	12.52	16.48	16.73
Nurturant Press	1.61	0.00	0.54

The Weighted Scoring Systems

Weighted scoring systems have been devised by several authors, notably McClelland, et al. (1953, 1958) for achievement motivation, and Heyns, et al. (1958) for affiliation motivation. These schemes serve two purposes: obtaining an over-all score, and giving additional weight to the factors each author considers more important.

Weighted Achievement Scoring Systems

The basic scheme for obtaining a total achievement score is the n Achievement scoring system proposed by McClelland, et al. (1953, 1958). Briefly, +1 is awarded for Achievement Imagery. Where Achievement Imagery has been scored, +1 is also awarded for the subcategories of Need for Achievement, Instrumental Activity, Anticipatory Goal States, Obstacles, Nurturant Press, Affective States, and Achievement Thema. Where Achievement Imagery cannot be scored, 0 is awarded for Doubtful Imagery, and -1 for Unrelated Imagery. Thus, a range of scores from -1 to +11 can be obtained for a single story. The score for any one person is the sum of the scores obtained for all stories. For definitions of the terms used above, the reader is referred to Appendix C.

Because of the prominence of Unrelated Imagery, reported earlier, negative n Achievement scores were obtained by many subjects. These were converted into positive scores by adding an amount equal to the maximum obtained negative score to all scores, whether positive or negative.

The results of the analysis of variance of the McClelland n Achievement scoring of the protocols obtained in the present study are

presented in Table 22.

As will be noted, the variance ratio for raters is highly significant, while those for achievement groups and the raters x groups interaction are definitely within the non-significant range. Thus, even with the use of the McClelland weightings, it is still impossible to accept the hypothesis of a significant difference between groups.

Writing on the subject of n Affiliation scoring, Heynes, et al. (1958) have taken issue with the practice of awarding a negative score for Unrelated Imagery. They feel that such a scoring is "gratuitous," since the incidence of Unrelated Imagery is dependent upon the incidence of scorable imagery, yet Unrelated Imagery is, by this practice, weighted twice as heavily as is any other "main" category. Accordingly, these investigators have scored 0 for Unrelated Imagery.

Since this method represented an alternative method of avoiding negative scorings, a second analysis was done, in which Unrelated Imagery was scored as 0. The results of this analysis are presented in Table 23. It is apparent that no greater success in differentiating achievement groups was attained by the Heyns modification.

As an aid in analyzing the highly significant raters x groups interaction, mean n Achievement scores obtained with the Heyns modification are presented by rater and achievement group in Appendix 0. It can be seen there that one contributing factor is the divergence of mean n Achievement scores awarded to the middle achievement group. Rater (2)'s mean score for the middle achievement group is sharply higher, while Rater (3)'s is a slight decrease, and Rater (1)'s mean score barely increases. A second contributing factor is the convergence

TABLE 22

ANALYSIS OF VARIANCE FOR THE McCLELLAND n ACHIEVEMENT
SCORING SYSTEM

Source	SS	df	MS	F
Between subjects	2,843.46	44	659.26	
Groups	10.42	2	5.21	0.001
Error	2,833.46	42	674.63	
Within subjects	1,806.67	90		
Raters	1,318.50	2	659.25	122.31 ^a
Raters x groups	35.64	4	8.91	1.65
Error	452.33	84	5.39	
Total	4,650.55	134		

^a_p less than .001

TABLE 23

ANALYSIS OF VARIANCE FOR THE HEYNS MODIFICATION OF THE
McCLELLAND n ACHIEVEMENT SCORING SYSTEM

Source	SS	df	MS	F
Between subjects	1,018.67	44	23.15	
Groups	2.85	2	1.42	0.34
Error	1,015.82	42	4.186	
Within subjects	1,058.67	90	17.63	
Raters	531.26	2	265.53	36.89 ^a
Raters x groups	822.58	4	205.74	28.56 ^a
Error	604.83	84	7.20	
Total	2,977.34	134		

^a_p less than .001

of mean scores from all three raters for the low academic achievement group.

With the use of the Heyns modification, the difference between raters remained equally significant, and in a similar direction. Reference to Appendix O will show that, as with the McClelland scoring, the mean score awarded by Rater (2) is significantly larger than that awarded by the other raters. Raters (1) and (3) are significantly differentiated from each other, but at a higher level of probability.

A third scoring modification was developed for use in the present study. This system rests upon the fact that the four "main" categories of imagery may be arranged in order according to the relative prominence of imagery. McClelland, et al. (1958, p. 202) define Achievement Thema as an elaboration of Achievement Imagery to the point that it becomes the central plot of the story. Also, Achievement Thema may not be scored where there is a "major counter plot." Achievement Imagery, however, may be scored where a major counter plot does exist. All of these lines of reasoning suggest that Achievement Thema may be placed at the "high" end of a scale of prominence of achievement motivation.

The remainder of the scale follows the order assigned by McClelland, et al. (1958, p. 185) when they state, "The three imagery categories (UI, TI, and AI) [Unrelated, Doubtful, and Achievement Imagery] comprise a continuum of increasing certainty that the story contains imagery related to achievement motivation."

Score values were assigned to these types of imagery with this "continuum of increasing certainty" in mind. In the light of the

objections of Heyns, et al. (1958) to negative scoring, and the further consideration concerning the doubtful utility of the concept of negative achievement motivation, a score of 0 was assigned to Unrelated Imagery. For the reasons already discussed, a score of +1 was assigned to Doubtful Imagery, +2 to Achievement Imagery, and +3 to Achievement Thema. With respect to the "subordinate" categories, the McClelland (1958) scoring was followed.

The analysis of variance for the method can be seen in Table 24. A similar pattern of results emerged. The variance ratios for achievement groups and the raters x groups interaction remained insignificant, while that for raters remained highly significant. Comparing the size of the between-groups variance ratios obtained by the three methods, it would appear that the present method is less effective in group differentiation than is the Heyns modification.

Appendix O presents means and t-test results obtained for the highly significant difference between raters. As with both the McClelland and Heyns methods, a significantly larger mean rating was awarded by Rater (2), followed by Raters (3) and (1) in that order. Unlike the results for the McClelland and the Heyns methods, Raters (1) and (3) were not significantly separated in the present case.

In summary, none of the scoring methods obtained a significant difference between n Achievement scores of the three academic achievement groups. The Heyns modification most closely approached differentiation of groups, followed by the method devised for the present study, and the McClelland method, in that order. In itself, this fact might suggest that the problem of differentiation of groups in the present study is best approached by not using negative weighting, and

TABLE 24

ANALYSIS OF VARIANCE FOR THE ACHIEVEMENT MOTIVATION
SCORING SYSTEM DEvised FOR THE PRESENT STUDY

Source	SS	df	MS	F
Between subjects	2,097.73	44	47.67	
Groups	7.51	2	3.75	0.08
Error	2,090.22	42	49.92	
Within subjects	4,850.00	90	53.89	
Raters	2,063.32	2	1,031.66	31.47 ^a
Raters x groups	33.44	4	8.36	0.25
Error	2,753.24	84	32.78	
Total	6,947.73	134		

^a_p less than .001

avoiding a well-graduated scale. However, all between-groups variance ratios for n Achievement were of such an order that this is speculation, rather than deduction. The size of the between-groups variance ratios might better be interpreted as further evidence of the lack of arousal of achievement motivation, as discussed earlier.

Weighted Affiliation Scoring Systems

We turn now to a consideration of total scores for affiliation motivation, obtained by the method of Heyns, et al. (1958) and by the method devised for the present study.

In brief, the method used by Heyns, et al. (1958) is to award a score of +1 to each of the following categories: Affiliation Imagery, Need for Affiliation, Positive Anticipatory Goal State, Successful Instrumental Activity, Positive Affective State, Environmental Obstacle, and Affiliation Thema. Both Doubtful and Unrelated Imagery are scored 0. It will be noted that this scoring system stresses the more positive aspects of affiliation motivation. Specifically, the Heyns system accepts only Successful Instrumental Activity, Positive Anticipatory Goal State, and Positive Affective State, whereas the McClelland system scored all Instrumental Activity, regardless of outcome, and both positive and negative aspects of Anticipatory Goal State and Affective State. The final difference is that the Heyns system scores positively only Environmental Obstacle, while for the McClelland scoring, both Environmental and Personal Obstacle were acceptable. For definitions of these terms, the reader is referred to Appendix D.

Table 25 presents the results of the analysis of variance for the Heyns n Affiliation scoring. Once again, we find a significant difference between raters, but an insignificant difference between

TABLE 25

ANALYSIS OF VARIANCE FOR THE HEYNS NEED AFFILIATION
SCORING SYSTEM

Source	SS	df	F
Between subjects	1,566.00	44	
Groups	122.53	2	1.782
Error	1,443.47	42	
Within subjects	493.33	90	
Raters	37.37	2	3.677 ^a
Raters x groups	29.05	4	1.429
Error	426.91	84	
Total	2,059.33	134	

^ap less than .05

groups and for the raters x groups interaction. In keeping with the earlier discussion of a greater success in arousal of affiliation than of achievement motivation, it may be noted that the between-groups variance ratio for the Heyns n Affiliation scoring (1.78) is considerably larger than the corresponding ratios for the McClelland n Achievement scoring (.001), the Heyns modification of the McClelland method (0.34), or the achievement scoring method devised for the present study (0.07). This would suggest considerably greater progress toward group differentiation with the n Affiliation scale. This fact is more striking when it is realized that, because of the exclusion of several subordinate categories, the maximum possible n Affiliation score per story is +7, compared with the +11 possible under the McClelland n Achievement system.

Also worthy of notice is the lower level of significance obtained for the between-raters variance ratio, suggesting a closer approach to agreement than that obtained for the n Achievement scales. An examination of rater mean scores and t-test results (Appendix 0) supports this observation. Only one significant difference was obtained, that between Raters (1) and (2).

In order to maintain comparability as far as possible, the n Affiliation system devised for the present study followed the Heyns usage except for scoring Affiliation Thema as +3, Affiliation Imagery as +2, Doubtful Imagery as +1, and Unrelated Imagery as 0. The rationale for this system has already been discussed, and need not be repeated here. Table 26 presents the analysis of variance for this system. Over-all, the results are quite similar to those obtained for the Heyns system. The between-groups and the raters x groups

TABLE 26

ANALYSIS OF VARIANCE FOR THE NEED AFFILIATION
SCORING SYSTEM DEvised FOR THE PRESENT STUDY

Source	SS	df	MS	F
Between subjects	3,511.37	44	79.80	
Groups	217.53	2	108.76	1.386
Error	3,293.84	42	78.42	
Within subjects	1,333.67	90	14.82	
Raters	174.06	2	87.03	6.996 ^a
Raters x groups	114.27	4	28.57	2.297
Error	1,045.34	84	12.44	
Total	4,845.04	134		

^ap less than .001

variance ratios are insignificant, while a high degree of significance was obtained for the between-raters component. As with the Heyns system, a comparison of the between-groups variance ratio for this n Affiliation scoring system with the ratios obtained by the three n Achievement systems, suggests greater progress toward group differentiation for affiliation scoring. It will be noted that the present n Affiliation system produced higher variance ratios for the between-raters and raters x groups components, and a lower between-groups ratio, as compared to the Heyns n Affiliation system. This suggests that the effect of weighting more differentially the relative prominence of expressed affiliation imagery is to increase the disparity between raters, both in over-all scores and in scores allotted to the different achievement groups, without increasing the differentiation between achievement groups.

Summary

No group differentiation was achieved by any of the methods used for measuring achievement motivation. Within the "main" categories, the significantly higher incidence of Doubtful and Unrelated Imagery would seem to suggest that achievement motivation was insufficiently aroused in the experimental situation. In the case of the McClelland n Achievement scoring system, the necessity of correcting for negative scores indicates a similar conclusion. In the case of "subordinate" categories of achievement motivation, the significantly greater emphasis, across achievement groups, on the more "objective" over the "subjective" subordinate categories may suggest a lack of personal involvement. Thus, this may be either another index of lack of arousal of achievement motivation, or an indication of restraint on the part of the subjects,

or, most probably, a combination of both.

The pictures presented by the various measures of affiliation motivation are somewhat different. Although no group differentiation could be obtained from the "main" categories, Affiliation Imagery was significantly more prominent than Doubtful Imagery. This would suggest considerably greater effectiveness in the arousal of affiliation motivation, as compared with achievement motivation. Among the "subordinate" categories of affiliation motivation, the most prominent (Need for Affiliation and Affective State) could certainly be included in the "subjective" aspects of affiliation motivation. This would suggest comparatively greater arousal of affiliation motivation, a lack of restraint, or both.

Similar results to those just discussed were obtained by the two n Affiliation scoring methods. Although group differentiation could not be achieved, the between-groups variance ratios were considerably larger than those obtained by any of the n Achievement scoring methods, thus suggesting greater progress toward group differentiation by n Affiliation scoring methods than by n Achievement scoring methods. Reference to Table 27, however, indicates that whatever difference can be found on n Affiliation between groups is in a direction exactly counter to that hypothesized.

The Perceptual Measures

Hypothesis 3 states:

The high academic achievement group will obtain significantly higher scores in perceptual range and perceptual organization, and significantly lower scores in perceptual personalization, as compared with the low academic achievement group. The middle achievement

TABLE 27

MEANS BY SCORING SYSTEM AND ACHIEVEMENT GROUP
FOR THE n AFFILIATION SCORING SYSTEM

Achievement Group	Heyns Scoring	"Present" Scoring
High	4.067	8.467
Middle	5.200	10.444
Low	6.400	11.533

group will occupy an intermediate position in the distribution of scores, not significantly different from either high or low academic achievement groups.

As with the data for achievement and affiliation motivation, perceptual scores were subjected to an arcsin transformation and a Lindquist Type VI analysis of variance. The analysis of variance is presented in Table 28. The most important point in this table is that the variance ratio for groups is not significant and that Hypothesis 3, therefore, must be rejected.

A breakdown of data perceptual categories is presented in Table 29. The highest mean score for any one category was for perceptual range, followed by perceptual personalization and organization, in that order. All inter-category differences were significant. It will be noted that the category of perceptual range shows both the least disparity between raters (Appendix P), and the highest mean score (Table 29). The most probable cause for the relative congruence in ratings here is the objective nature of this category. The other two categories require much more inference on the part of the rater. The significantly higher mean score for perceptual range is probably a result of the fact that this category is a measure of "normality" of response, in terms of inclusion of the more "popular" stimulus properties of the picture. A high score in this category may be gained by a careful approach to the task, restricted listing of the more salient aspects of the picture. It can thus be seen, in the present study, as indicative of a careful approach to an unfamiliar task.

The score for perceptual personalization was significantly lower than that for perceptual range, but higher than that for perceptual organization. It proved, upon analysis of the stories, to be

TABLE 28

ANALYSIS OF VARIANCE FOR DANA'S PERCEPTUAL MEASURES

Source	SS	df	MS	F
Between subjects	17,002.46	44	386.42	
Groups	943.17	2	471.59	1.23
Error	16,059.28	42	382.28	
Within subjects	102,737.68	360	285.38	
Raters	5,385.18	2	2,692.59	15.95 ^a
Categories	8,446.16	2	4,223.08	10.09 ^a
Raters x categories	5,385.18	4	1,346.29	3.52 ^b
Raters x groups	444.99	4	111.25	0.67
Groups x categories	991.99	4	247.99	0.59
Raters x categories x groups	585.18	8	73.15	0.91
Error	81,499.00	336	242.56	
Error ₁	14,178.62	84	168.79	
Error ₂	35,161.64	84	418.59	
Error ₃	32,158.74	84	382.84	
Total				

^a_p less than .001

^b_p less than .01

TABLE 29

MEANS AND t-TEST RESULTS FOR DANA'S PERCEPTUAL CATEGORIES

Category	Mean
1. Perceptual Range	100.97
2. Perceptual Personalization	86.47
3. Perceptual Organization	75.04

	1.	2.	3.
1.		3.877 ^a	6.933 ^a
2.			3.056 ^b
3.			

^ap less than .001^bp less than .01

Note: Marginal numbers represent perceptual categories as listed directly above. Numbers in the body of the table are obtained values for t.

primarily composed of three types of statements: questions or doubts about the adequacy of performance, attempts to gain expressions of approval from the experimenter, and statements of institutional values, only slightly related to the stimulus card. The size of this score can thus be interpreted as support for an earlier formulation that, as achievement grows less satisfactory for the retarded child, affiliation motivation increases.

The third category, perceptual organization, reflects the subject's ability to adhere to the standard directions. Since the directions are only given once, and in a generalized and therefore abstract form, both verbal memory, and some manipulation of abstract concepts are involved in all directions. Particular directions call for a certain facility in social role-playing, and the ability to arrange events in a temporal sequence. A low score in perceptual organization may reflect a handicap of the retarded child in any of these areas. Also, it may reflect a disinclination of the child to reveal himself or to attempt too much in an unfamiliar situation whose outcome may influence his future.

In summary, it may be said that, with the present sample, perceptual range appears to be a measure of a careful restriction to "routine" response. Perceptual personalization reflects an attempt to gain the approval of, or make a favorable impression upon, the examiner. Perceptual organization may reflect either handicaps in complex mental functions, or a partial withdrawal from the task. It should be noted that this is a distinctly different version of the content of these measures from that given by Dana (1956). He sees perceptual range as reflecting normality of response, perceptual organization as reflecting

"approach" to an ambiguous stimulus, and perceptual personalization as an index of rarity of response.

Rater Differences

The highly significant difference between raters on the "main" categories of achievement motivation (Appendix J) is primarily a result of Rater (2)'s apparent use of more lenient criteria in rating achievement motivation. This leniency is particularly prominent in a comparison of the categories of Doubtful and Unrelated Imagery. Apparently, many of the stories the other raters score as having no reference to achievement, Rater (2) prefers to rate as having minor reference to achievement, and, in some cases, as qualifying for Achievement Imagery. However, Raters (1) and (3) did not significantly resemble each other. Product-moment r 's between Raters (1) and (3) ranged from .27 for Unrelated Imagery to .63 for Achievement Thema, and average to .46. None of these correlations were significant. With regard to the "subordinate" categories of achievement motivation, it is clear that Rater (2) rates these categories also by much more lenient criteria than do Raters (1) and (3). An examination of the raw data indicated an "optimistic bias" in those "subordinate" categories where Rater (2)'s scores were particularly high. The emphasis on positive Instrumental Acts, positive Anticipatory Goal States, and Nurturant Press show that this rater often interpreted the stories as describing characters who took successful action toward goals they expected to attain, and who enjoyed considerable assistance from others. Raters (1) and (3) definitely did not share this view.

In the "main" categories of affiliation motivation (Appendix L),

Rater (2)'s tendency toward more "generous" ratings is still present, but not as easily demonstrable as in the "main" categories of achievement motivation. The most noticeable reversal of this "generosity" trend can be seen in the considerably lower mean score awarded by Rater (2) in the category of Affiliation Thema, as compared with Rater (1). Despite this reversal, "generosity" is still quite evident in the high mean score awarded by Rater (2) in the category of Affiliation Imagery, and in the continued preference of this rater for Doubtful Imagery over Unrelated Imagery.

In the "subordinate" categories of affiliation motivation (Appendix N), a different picture is presented. Rater (1)'s mean scores are higher in all categories, with the exception of Anticipatory Goal States. Rater (1), as compared with Rater (2), sees much more expressed Need for Affiliation in the stories, but accompanied with more obstacles to its satisfaction. Rater (1) also sees the characters as engaged in more goal-directed activity, and with greater emotional involvement. More detailed analysis of the data reveals that this activity is often unsuccessful, or of doubtful outcome, and that the characters are, in fact, experiencing "pain of separation or rejection" to a much greater degree than in the scorings of either Raters (2) or (3).

Rater (2), on the other hand, sees the characters as expressing Need for Affiliation much less frequently than do the other raters. For Rater (2), the characters are less active than those of Rater (1), more active than the characters of Rater (3), yet more successful in their activity than are the characters of either Rater (1) or Rater (3).

The significantly higher mean scores awarded by Rater (2) for

each of the three weighted achievement scoring systems (Appendix O) can be accounted for in terms of the preference Achievement Imagery and Doubtful Imagery over Unrelated Imagery discussed earlier in this study. It will be remembered that, in each of the three systems, Achievement Imagery and Doubtful Imagery receive a larger weighted score than does Unrelated Imagery. Thus, the higher mean weighted achievement scores awarded by Rater (2) may be interpreted as a manifestation of the trend toward "generosity" of scoring for achievement motivation in a somewhat different form.

In the weighted affiliation scores (Appendix P), however, the mean score awarded by Rater (1) was significantly higher than that for either of the other raters. This held true for both scoring systems. Reference to Appendix L indicates that the reason for this is the much higher frequency of use of the category of Affiliation Thema by Rater (1). The preference of Rater (2) for the categories of Affiliation Imagery and Doubtful Imagery accounts for the similarity of the mean weighted affiliation scores of Rater (2) to those of Rater (3) who displays a similar pattern.

An examination of mean scores awarded by the three raters for Dana's perceptual system (Appendix Q) discloses that Rater (2) awarded a higher mean score, both over-all and in each of the categories. This result, considered in the context of the findings discussed above, suggests that Rater (2), in addition to the "optimistic bias" already discussed, is also quite strongly biased toward scoring "presence" rather than "absence." In addition to the perceptual categories, this "presence bias" is also well demonstrated in the mean scores for Achievement Thema and Need for Achievement. Both of these mean scores

for Rater (2) are considerably higher than those of the other raters in the same categories.

CHAPTER IV

DISCUSSION

Hypothesis 1a predicted that, for the level of aspiration task, the high academic achievement group would show the lowest, and the low academic achievement group the highest, D-scores, with the middle academic achievement group in an intermediate position. A significant difference was found between groups for performance D-scores, or D-scores calculated from performance scores. Only chance differentiation between groups was demonstrated for Rotter D-scores, or D-scores calculated from Rotter scores. Examination of the significant between-groups differences for performance D-scores disclosed that the high academic achievement group obtained the highest, while the low achievement group obtained the lowest mean performance D-scores. Thus, the direction of the obtained differences was exactly counter to that hypothesized. Comparison of goals and performance scores for the three academic achievement groups indicated that this difference was not a function of any consistent, significant between-groups difference in either performance scores or goal-settings. Rather, it was a function of the fact that the high academic achievement group characteristically set goals further below previous performance than did the low academic achievement group.

Hypothesis 1b postulated a significantly smaller frequency and size of shifts of the goal level for the high, as compared with the

low, academic achievement group, with the middle group again in an intermediate position. No significant between-groups differences were found for either frequency or size of shifts. Three "tendencies," approaching significance, were observed: (1) a tendency for the number of raises of the goal level following success to increase with the lower achievement groups; (2) a tendency for the high academic achievement group to lower the goal level following success; (3) a tendency toward smaller mean size of shift following success for the high academic achievement group.

Hypothesis 2 postulated a significantly greater degree of achievement and affiliation motivation in the high, as compared with the low, academic achievement group. No significant group differences were found by any of the scoring methods used. In both frequency data for the "main" categories and the weighted score data, there were indications of much greater inter-group expression of affiliation than of achievement motivation. Weighted score data for affiliation motivation indicated that, when achievement groups were compared, the degree of arousal of affiliation motivation was inversely, but not significantly, related to level of academic achievement.

The motivational measure was taken directly after a goal-setting task. This task would be expected to arouse achievement motivation. Despite the close sequence, the past history of academic achievement was in no way related to the achievement motivation measure. The greater use of the "objective subordinate" categories is further evidence of the lack of emotional involvement of all groups in achievement motivation. Paradoxically, following the "achievement-oriented" goal-setting task, there was, for all groups, greater

arousal of affiliation motivation, and, in the use of "subjective subordinate" categories, significant evidence for the emotional involvement of all groups in affiliation motivation. However, as already pointed out, the degree of arousal of affiliation motivation was inversely proportional to level of academic achievement.

Since Reitman (1960) has reported a significant correlation of measures of affiliation motivation and performance, under achievement-oriented conditions, this "interchangeability" of achievement and affiliation motivation is not unknown. Reitman prefers to attribute such relationships to difficulties in equating motivation across achievement groups. In the present writer's opinion, the role of a psychologist, as a potent ally of the child in achieving many desired goals, and the necessity of good performance on tasks set by the psychologist as a qualification for this aid, are both widely known among the residents of this institution. For this reason, it seems likely that all subjects were highly motivated to "do well."

This high level of motivation was, however, expressed more in concern for affiliation, rather than for achievement. In the present writer's opinion, this stems from the fact that achievement and affiliation are intimately related in the institutionalized mentally retarded child. In the pre-institutional period, the association between academic achievement and satisfying affiliative relationships is repeatedly reinforced by both parents and teachers. Within the institution, the rewards are favor with authority, and the prospect of release to his parents. Release from the institution is often primary or even sole objective of the child, toward which academic and other achievement is only a means to an end. This hope

of release is fostered, often quite unrealistically, by both parents and some personnel, as a means of "managing" the child. It is also widely believed among the "children" that they may be withdrawn by their parents at any time, regardless of their level of job or school achievement. It is for this reason that academic achievement is, at best, only a means to eventual release, and possibly an unnecessary step in this direction. The emphasis, in the present study, upon the objective aspects of achievement motivation and the subjective aspects of affiliation motivation would seem to indicate greater emotional involvement in affiliation motivation.

To the extent that the retarded child has, in both pre- and post-institutional life, been unable to perform at an academic level that would "entitle" him to satisfying affiliative relationships, he must be increasingly concerned with obtaining them in other ways. In this way, the inverse relationship between academic achievement and height of affiliation motivation found in the present study may be explained. This explanation also makes it possible to view the results as support for the "alternative channels" hypothesis offered by Lazarus, et al. (1957) and supported by the later work of Broverman, et al. (1960) and Cole, et al. (1962). It will be remembered that all these workers found an inverse relationship between achievement fantasy and actual achievement, whether measured by verbal reproduction (Lazarus, et al.), by job level (Broverman, et al.), or by scholastic achievement (Cole, et al.). The explanation discussed above offers one reason why, in the present study, affiliation fantasy was the "alternative channel" for lack of achievement.

Other findings in the present study support this formulation.

It will be recalled that, among the "subordinate" categories of achievement motivation, the "objective subordinate" categories (e.g., Instrumental Activity, Anticipatory Goal States, and Obstacles) were used more significantly than were such "subjective subordinate" categories as Affective States, Need for Achievement, and Nurturant Press. In the case of affiliation motivation, on the other hand, the "subjective" were significantly more frequently used than were the "objective subordinate" categories. This would indicate that the emotional aspects of affiliation motivation were more effectively aroused, whereas, in the case of achievement motivation, arousal was both limited and objective.

Hypothesis 3 postulated that the high academic achievement group would display significantly higher scores in perceptual range and in perceptual organization, and significantly lower scores in perceptual personalization. None of these predictions were supported. If we accept Dana's interpretation of his measures, this finding indicates that the academic achievement groups do not differ in terms of constructive contact with reality, facility in organizing experience, or in degree of concern with giving an acceptable account of themselves. As has previously been suggested, an alternative interpretation is that, for the present sample, a high score in perceptual range may represent a careful restriction to "routine" responses, rather than a constructive contact with reality. In the same way, a low score in perceptual organization may represent handicaps in complex mental functions, or a partial withdrawal from the task, rather than a lack of facility in organizing experience. A high score in perceptual personalization may represent an attempt to gain the approval of the

examiner, rather than a pathological lack of concern in giving a good account of oneself.

The remaining significant findings to be discussed are derived from the level of aspiration task: (1) the significantly higher D-scores obtained by the high group as compared with the low achieving group, and (2) the significantly oscillatory motion of the D-scores for all groups as demonstrated by the orthogonal contrast method.

With respect to the significantly higher D-scores as calculated from performance scores which were obtained by the high group, it will be remembered that examination of performance scores and goal-setting for the three groups showed higher performance scores for the high group, while goal-setting differed only slightly among the three groups. As pointed out earlier, although the high group is much more conservative in goal-setting relative to performance than are the other groups, all groups show a similar "conservatism." This is a difference in degree, rather than in kind.

For this reason, the more important question, from a theoretical point of view, is not the significant difference in the high group, but rather why all three groups behaved in a similar "conservative" fashion. Specifically, why did all three groups maintain a high D-score level? Why was not the goal-setting moved closer to performance? Why did the D-score oscillate so dramatically, rather than following performance?

One probable answer to these questions is the nature of the scoring system used. It will be recalled that the scores calculated and announced in view of the subject were obtained by the Rotter scoring system. This system does not reward for surpassing the set

goal, but it does penalize rather heavily for not reaching it. Thus, the effect of maintaining a low goal level is to minimize loss. Gardner's finding (1959) that the retarded displayed a lower initial setting of the level of aspiration would seem to support this position.

Another probable contribution to this conservative approach, i.e., maintaining a low goal-setting is the retarded child's feeling of inadequacy in an unfamiliar situation. The use of an unfamiliar task, in the attempt to control practice and experimental effects, probably exerts a much greater influence upon the retarded than upon the intellectually normal child.

The oscillations of the goal-setting and consequently of the D-score occur in a relatively limited, loss-minimizing area. We are still, however, left with the problem of accounting for this oscillation. If, as we have suggested, the primary intention for all achievement groups was to minimize loss, a certain amount of random selection of goal would be expected. This point may be made clearer if we contrast loss-minimization to the situation where the subject attempts to fit the goal to past achievement. In this latter situation, the subject's choice is restricted, psychologically, by his past performance on one side and by his aspirations for future performance on the other. In the situation where loss-minimization is the goal, the nature of this goal allows a considerably greater degree of randomness of choice.

However, it should be made clear that, since concepts of loss-minimization and randomness of choice are suggested by, rather than tested through, the experimental results, these are more properly considered speculations rather than conclusions.

CHAPTER V

SUMMARY

The subjects for this experiment were 45 institutionalized mentally retarded children. All were drawn from the same institution, and all were pupils at the institution's academic school.

The subjects were divided into high, middle, and low academic achieving groups on the basis of discrepancy of battery median score on the Stanford Achievement Test from the national norm for their grade. The high achieving group was composed of those 15 students (from a school total population of 55) with the highest positive deviation from the battery median national norm for their grade. The middle achieving group was composed of those 15 students scoring at or near the national norm. The low achieving group was composed of those 15 students with the highest negative deviation from the battery median national form for their grade. These achievement groups were found to be successfully matched on Stanford-Binet intelligence quotient, chronological age, age at institutionalization, total time of institutionalization, and diagnostic category. Matching for school grade was not successful.

After familiarization and practice trials, subjects were given 20 blocks of 5 trials each on the Rotter Level of Aspiration Board. Before each block of trials, an estimate of the score to be achieved ("goal") was obtained from the subject. At the end of each block of

trials, the score actually obtained was recorded, and the score according to the Rotter system of scoring was calculated aloud, explained, and written in full view of the subject. After a short rest period, a series of TAT cards (Cards 2, 3BM, 4, 6BM, 7BM, and 8BM for males, and 2, 3GF, 4, 6GF, 7BM, and 8BM for females) were given, and verbatim protocols were taken. The protocols were later scored by three raters, following the achievement motivation scoring system of McClelland, et al. (1958), the affiliation motivation scoring system of Heyns, et al. (1959), and Dana's perceptual scoring system (1954, et seq.).

It was hypothesized that, on the level of aspiration task, the high academic achieving group would display significantly lower goal discrepancy scores, and significantly fewer and less extreme shifts of the level of aspiration, as compared with the low achieving group. Statistical tests of this hypothesis showed significantly higher discrepancy scores and less extreme shifts in the high achieving group. There was no significant difference between groups in the number of shifts. Highly significant oscillations of the performance discrepancy score were also demonstrated for all groups. Thus, the findings for goal discrepancy scores were counter to the direction hypothesized, while the data for shifts of the level of aspiration gave it limited support.

It was further hypothesized that the high academic achieving group would display significantly higher levels of both achievement and affiliation motivation, as compared with the low academic achieving group. Significant differences could not be demonstrated for the incidence of achievement groups in either the "main" or "subordinate"

categories of achievement or of affiliation motivation scoring. Further analysis indicated a low level of arousal of achievement motivation, with a significant emphasis upon its "objective" aspects. A much higher level of arousal was found for affiliation motivation.

The data for achievement and affiliation motivation were further analyzed by the weighted scoring systems used by McClelland, et al. (1958) and Heyns, et al. (1958), and by a method devised for the present study. No significant difference between achievement groups could be demonstrated for both motivation scorings by any one of these methods. A comparison of the various weighted scoring systems indicated that, the more differential the weighting for prominence of imagery, the greater the degree of rater disagreement that could be obtained.

The significantly higher discrepancy score for the high achieving group on the level of aspiration task was discussed in terms of a postulated attempt to minimize losses on the part of all groups, but significant only for the high achieving group because of the higher performance scores obtained by this group.

The oscillation of goal discrepancy scores was interpreted as a function of the focus upon loss minimization, as opposed to the "achievement-following" or "achievement-leading" methods of goal-setting.

Significant differences between groups in affiliation motivation, and in levels of arousal of achievement and affiliation motivation, were interpreted as evidence for the "alternative channels" model of Lazarus, et al. (1957), and in terms of the relative positions of achievement and affiliation motivation for the institutionalized retarded child.

No significant difference between groups could be found for any of Dana's perceptual categories. An analysis of the content of these categories for the present sample was suggested, which differed importantly from that offered by Dana. The analysis of content for the present sample stressed restriction to routine response, attempts to gain approval, possible handicaps in complex mental functions, and partial withdrawal from the task. This, in turn, would suggest that concepts valuable in the evaluation of "ego function" in normal, neurotic, and psychotic populations may not be equally applicable to the institutionalized mentally retarded.

APPENDICES

APPENDIX A

Instructions for the Rotter Level of Aspiration Board

Usual Instructions:

"This is a test of motor control. The idea is to aim always for the ten. Your score will depend on how close to the ten you come. You will be given a series of trials on which you should try to get as high a total score as possible. Before you start each trial, however, you will have to tell me the score you expect to get, and you will not be credited with anything over that score. If your score is lower than your bid, then the score you will be credited with will be two points off your bid for every point you fall below in your actual score. For example, if you say you will score 15, and score 20 for the five trials, you will only get credit for 15; if you say 15 and score 10, then you will only get credit for five. You can see that once your bid is made, it is always to your advantage to score as high as possible."¹

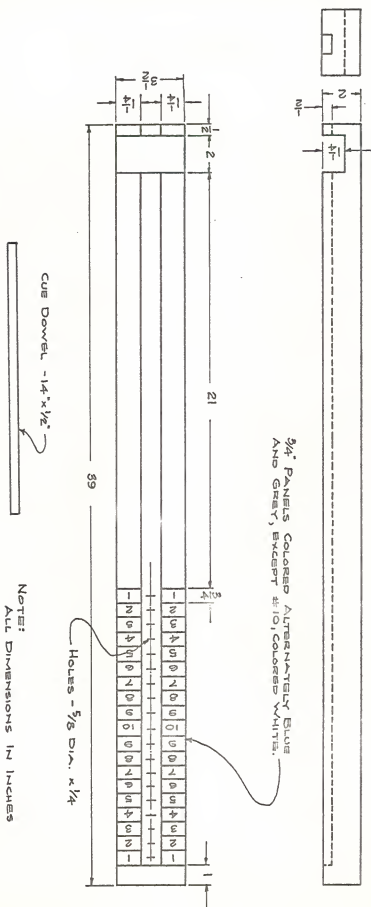
Experimental Instructions:

"This is a test of muscle control. Try to aim always for the ten. You will have five chances, and then your score will be added up. Try to get as good a score as you can. Before each turn, you must tell me the score that you think you will make. You cannot make any higher score than the score that you tell me. So, if you say that you will score 15, and then you score 20, you will only get credit for the 15 that you said. If you make a lower score than what you say you will make, you will have points taken off. For every point that you say you will make, but don't make, you will have two points taken off. So, if you say that you will score 20, and you only score 15, you will have missed by 5 points. For every one of these five, you will lose two points. Five x two is ten, so you will lose ten points. You made 15, but you lose 10. Ten from 15 leaves 5, so your score will be five points. This is why you should always try to make a high score - so that you won't have any points taken off. Now, do you want to ask any questions before we start?

¹Rotter, J. B. Level of aspiration as a method of studying personality. II. Development and evaluation of a controlled method. *J. exp. Psychol.*, 1942, 31, 410-22.

APPENDIX B

Diagram of Rotter Level of Aspiration Board



NOTED: ALL DISPOSITIONS IN LUCHER

APPENDIX C

Scoring Manual for Achievement Motivation¹

1. Achievement Imagery (AI)

A. Reference to an achievement goal, i.e., success in competition with some standard of excellence.

B. Competition with a standard of excellence.

1. Success actually stated as the primary concern.

2. If not explicitly stated, the following are taken as indications:

a. Affective concern over goal attainment.

Exp: "The boy wins the contest and feels proud."

"The boy loses the contest and becomes bitter."

b. Certain types of instrumental activity which imply concern for a standard of excellence.

Exp: "The boy is studiously and carefully preparing his homework."

C. Unique Accomplishment

1. Inventions, artistic creations, etc.

D. Long-term Involvement

1. Involvement in a long-term achievement goal

2. The relation of the specific task to the long-term goal must be stated.

E. "There must be evidence of a positive orientation toward achievement."

Only stories which fulfill at least one of these four categories (A, B, C, D) can be scored for subordinate categories.

¹Abridged from: McClelland, D. C., Atkinson, J. W., Clark, R. A., and Lowell, E. L. A scoring manual for the achievement motive. In J. W. Atkinson (ed.), Motives in fantasy, action, and society: a method of assessment and study. Princeton: D. Van Nostrand Co., 1958.

2. Achievement Thema (Ach Th)

- A. Achievement Imagery (AI) elaborated to the point of being the central plot of the story.
- B. Not scored if there is any doubt that the achievement imagery is central to the plot, or if there is a major counterplot.

3. Doubtful Achievement Imagery (TI)

- A. Some reference to achievement, but failure to meet the criteria for AI.
- B. Such stories are not scored further in subordinate categories.
- C. "Most frequently, one of the characters is engaged in a common-place task, or solving a routine problem."

4. Unrelated Imagery (UI)

- A. No reference whatsoever to achievement.

Subordinate Achievement Categories

1. Stated Need for Achievement (N)

- A. Desire stated to reach the achievement goal

Exp: "He wants to be a doctor."

"He hopes to complete the machine."

2. Instrumental Activity (I)

- A. "Overt or mental activity by one or more characters in the story indicating that something is being done about attaining an achievement goal"
- B. "There must be an actual statement of activity, independent of both the original statement and the final outcome."
- C. Scoring:

I+ Successful Instrumental Activity.

I? Doubtful Outcome of Instrumental Activity.

I- Unsuccessful Instrumental Activity.

3. Anticipatory Goal States (Ga)

- A. "Someone in the story anticipates goal attainment or frustration and failure."
- B. "Achievement-related anticipations must be related to the achievement goal of the story."

C. Scoring:

Ga+ Anticipation of Goal Attainment.

Ga- Anticipation of failure to attain goal

All statements not clearly positive are scored minus.

4. Obstacles (B)

- A. Progress of the goal-directed activity is blocked or hindered.

B. Scoring:

Bp Obstacle located within the individual.

Bw Obstacle located in the environment.

Bw is scored where it is doubtful whether the obstacle is in the environment or in the individual.

Exp: "Competition was too keen for him."

5. Nurturant Press (Nup)

- A. "Forces in the story, personal in source, which aid the character who is engaged in achievement-related activity."

Exp: "The experienced machinist is trying to straighten things out for the apprentice and is encouraging him."

6. Affective States (G)

- A. "Affective (emotional) states associated with goal attainment, active mastery, or with frustration of the achievement-related activity."

B. Scoring:

G+ (1) "A positive affective state associated with active mastery or definite accomplishment, or

(2) Definite objective benefits which allow the inference of positive affect."

Exp: "His genius is acknowledged by millions."

- G- (1) "A negative affective state associated with failure to attain an achievement goal."
- (2) "Objective concomitants of complete failure and deprivation which allow the inference of negative affect."

Exp: "He became the laughing stock of the community."

Both G+ and G- may be scored, but only once per story.

APPENDIX D

Scoring Manual for Affiliation Motivation¹

1. Affiliation Imagery (Aff Im)

- A. "Some evidence in one or more characters over establishing, maintaining, or restoring a positive affective relationship with another person."
- B. May be inferred from a negative reaction to separation or some disruption of an interpersonal relationship.
- C. May also be inferred from "generally accepted affiliative, companionate activities." (parties, reunions, etc.)
- D. "Friendly, nurturant acts, such as consoling, helping, being concerned about the happiness or well-being of another are regarded as evidence of affiliation feelings, provided they are not culturally prescribed by the relationship between the two persons."
- E. Only if a story qualifies for Aff Im can it be scored for subordinate categories.

2. Affiliation Thema (Th)

- A. Affiliation Imagery elaborated to the point that it is the central plot of the story.
- B. Not scored if there is "a strong alternative behavior sequence in the story."

3. Doubtful Affiliation Imagery (D Im)

- A. Some reference to affiliation, but a reasonable doubt as to whether the above criteria for Aff Im have been met.

4. Unrelated Affiliation Imagery (U Im)

- A. "Stories that clearly do not meet the stated criteria."

¹Abridged from: Heyns, R. W., Veroff, J., and Atkinson, J. W. A scoring manual for the affiliation motive. In J. W. Atkinson (ed.), Motives in fantasy, action, and society: a method of assessment and study. Princeton: D. Van Nostrand Co., 1958.

Affiliation Subordinate Categories

1. Stated Need for Affiliation (N)

- A. A stated need for "the establishment, maintenance, or restoration of an interpersonal relationship characterized by warmth, mutual liking, and understanding."
- B. Also scored (N) are: Wanting understanding, prayer for maintaining or establishing an interpersonal relationship, and unrequited love.

2. Instrumental Activity (I)

- A. "Overt acts or thoughts of a problem-solving nature by one or more characters in the story directed toward establishing, maintaining, or restoring an affiliative relationship," as characterized above.
- B. Scoring
 - I+ Successful outcome of activity.
 - I? Doubtful outcome.
 - I- Unsuccessful outcome.
- C. "There must be an actual statement of instrumental activity independent of both the original statement and the final outcome."
- D. "All activity which contributes to bringing about positive affective feelings is scored (I)."

3. Anticipatory Goal States (Ga)

- A. "Someone in the story anticipates goal attainment or frustration and deprivation."
- B. Scoring:
 - Ga+ "Someone in the story is thinking of the happiness accompanying an affiliative relationship or some affiliative activity, or is thinking of the activity itself."
 - Ga- "Someone is thinking of the pain of separation or rejection, or the fact that future separation, or of rejection itself."
- C. "Doubtful or uncertain anticipations are scored negative."

- D. "The anticipation must be intimately related to the affiliation behavioral sequence in order to be scored. . . . Both positive and negative anticipations may be scored in the same story, but only once per story."

4. Obstacles (E)

- A. "Goal directed activity is blocked or hindered in some way."

B. Scoring:

Bp Personal Obstacle.

"Most frequently, actions or attributes of the character which disrupt or prevent a positive relationship," e.g., shame, difficulty in relating to others, etc.

Bw Environmental Obstacle.

"Actual physical separation is the most frequent environmental obstacle."

Disagreements leading to separation are scored Bw, unless the fault is clearly attributed to the leading character.

5. Affective States (G)

- A. "Affective (emotional) states associated with attainment of affiliative relationships, affiliative activities, or their frustration, are scored G."

B. Scoring:

G+ Someone experiences satisfaction from affiliation.

G- Someone experiences pain of separation or rejection.

- C. Both G+ and G- may be scored, but only once in the same story for each.

- D. "A simple statement of the outcome of Instrumental Activity is not sufficient evidence."

Instructions for Thematic Apperception Test Cards¹

Form B (suitable for children, for adults of little imagination or intelligence, and for psychotics). "This is a story-telling test. I have some pictures here that I am going to show you, and for each picture, I want you to make up a story. Tell what has happened before and what is happening now. Say what the people are feeling and thinking and how it will come out. You can make up any kind of story you please. Do you understand? Well, then, here is the first picture. You have five minutes to make up a story. See how well you can do."

¹Murray, H. A., M. D. Thematic Apperception Test Manual.
Cambridge: Harvard University Printing Office, 1943, p. 4.

APPENDIX F

ANALYSIS OF VARIANCE FOR ACHIEVEMENT GROUPS ON
FOUR STANDARDIZATION VARIABLES

Variable	Source	SS	df	MS	F
IQ	Between	68.99	2	34.49	0.013
	Within	109,246.44	42	2,601.12	
	Total	109,315.43	44		
CA (months)	Between	822.24	2	411.12	0.011
	Within	1,541,214.18	42	36,695.56	
	Total	1,542,036.42	44		
AA (months)	Between	3,004.64	2	1,502.32	0.065
	Within	965,732.13	42	22,993.62	
	Total	968,736.77	44		
IA (months)	Between	2,320.77	2	1,160.38	0.426
	Within	114,292.89	42	2,721.26	
	Total	116,613.66	44		

APPENDIX G

TESTS OF THE DISTRIBUTION OF ACHIEVEMENT GROUPS INTO
SCHOOL GRADE AND DIAGNOSTIC CATEGORY BY CHI-SQUARE

	Cerebral Defect, Congenital	"other"
High achievement	9(9.3)	6(5.7)
Middle achievement	7(9.3)	8(5.7) $\chi^2 = 2.274$ $\underline{p} > .20$
Low achievement	12(9.3)	3(5.7)

APPENDIX H

OBSERVED AND EXPECTED FREQUENCIES FOR THE DISTRIBUTION OF ACHIEVEMENT GROUPS INTO SCHOOL GRADES

	Grades		
	1 and 2	3	4
High achievement	12(5)	0(5)	3(5)
Middle achievement	3(5)	8(5)	4(5)
Low achievement	0(5)	7(5)	8(5)
$\chi^2 = 26.0$		$p < .001$	

APPENDIX I

ANALYSIS OF VARIANCE FOR BATTERY MEDIAN GRADE SCORES BY ACADEMIC ACHIEVEMENT GROUPS

Source	SS	df	MS	F
Between	2.28	2	1.14	1.129
Within	42.61	42	1.01	
Total	44.89	44		

APPENDIX J

MEAN RATINGS BY RATERS AND CATEGORIES FOR THE "MAIN" CATEGORIES OF THE McCLELLAND ACHIEVEMENT SCORING SYSTEM

Category	Rater (1)	Rater (2)	Rater (3)
Achievement Thema	1.62	12.49	0.54
Achievement Imagery	2.14	21.40	12.10
Doubtful Imagery	24.25	44.12	24.06
Unrelated Imagery	63.45	31.20	57.61
Over-all rater means	22.93	27.31	23.58

Note: Statistically significant differences between over-all rater means in the above table are: (1) vs. (2), p greater than .001; (2) vs. (3), p greater than .001.

APPENDIX K

MEAN RATINGS BY RATERS AND CATEGORIES FOR THE "SUBORDINATE" CATEGORIES OF THE McCLELLAND ACHIEVEMENT SCORING SYSTEM

Category	Rater (1)	Rater (2)	Rater (3)
Instrumental Activity	2.14	15.15	10.64
Anticipatory Goal States	0.54	13.80	10.92
Obstacles	1.07	8.74	3.23
Affective States	0.54	7.78	3.75
Need for Achievement	0.00	2.93	1.32
Nurturant Press	0.00	12.54	2.39
Over-all rater means	1.02	15.43	7.93

Note: Statistically significant differences between over-all rater means in the above table are: (1) vs. (2), p less than .001; (1) vs. (3), p greater than .001; (2) vs. (3), p greater than .001.

APPENDIX L

MEANS BY RATERS AND CATEGORIES FOR THE "MAIN" CATEGORIES OF THE HEYNS AFFILIATION SCORING SYSTEM

Category	Rater (1)	Rater (2)	Rater (3)
Affiliation Thema	22.76	7.28	0.00
Affiliation Imagery	16.20	31.49	32.76
Doubtful Imagery	39.15	46.68	20.97
Unrelated Imagery	41.64	19.57	39.36
Over-all rater means	29.94	26.25	23.25

Note: Statistically significant differences between over-all rater means in the above table are: (1) vs. (2), p less than .001; (1) vs. (3), p less than .001; (2) vs. (3), p less than .001.

APPENDIX M

MEANS BY RATERS AND ACHIEVEMENT GROUPS FOR THE "MAIN" CATEGORIES OF THE HEYNS AFFILIATION SCORING SYSTEM

Achievement Group	Rater (1)	Rater (2)	Rater (3)
High	30.87	25.13	24.08
Middle	29.97	27.23	25.00
Low	28.97	26.40	25.24

APPENDIX N

MEANS BY RATERS AND CATEGORIES FOR THE "SUBORDINATE"
CATEGORIES OF THE HEYNS AFFILIATION SCORING SYSTEM

Category	Rater (1)	Rater (2)	Rater (3)
Instrumental Activity	15.50	13.74	14.32
Anticipatory Goal States	9.86	15.63	5.36
Obstacles	23.08	17.84	1.36
Need for Affiliation	11.97	6.11	18.38
Nurturant Press	1.07	0.00	0.00
Affective States	26.02	16.33	7.90
Over-all rater means	14.58	11.61	7.89

APPENDIX O

MEAN RATINGS BY RATERS AND ACHIEVEMENT GROUPS FOR THE WEIGHTED ACHIEVEMENT SCORING SYSTEMS

Scoring System	Rater (1)			Rater (2)			Rater (3)		
	Achievement Groups	High	Middle	Low	Achievement Groups	High	Middle	Low	Rater Mean
McClelland ^a									3.867
Heyns									
Modification	0.20	0.26	0.47	0.311	4.53	5.93	4.80	5.089	2.06
Present Study ^a									
				1.771				10.889	3.933

^aMeans were not computed for raters and achievement groups where significance was not obtained by analysis of variance for either groups or the raters x groups interaction.

Note: Statistically significant differences between rater means in the above table for the McClelland scoring system were: (1) vs. (2), p less than .001; (1) vs. (3), p less than .001; (2) vs. (3) p less than .001.
 Statistically significant differences between rater means for the Heyns modification were: (1) vs. (2), p less than .001; (1) vs. (3), p less than .01; (2) vs. (3), p less than .001.
 Statistically significant differences between rater means for the system devised for the present study were: (1) vs. (2), p less than .001; (2) vs. (3), p less than .001.

APPENDIX P

MEAN RATINGS BY RATERS AND SCORING SYSTEMS FOR THE WEIGHTED AFFILIATION SCORING SYSTEMS

Scoring System	Rater (1)	Rater (2)	Rater (3)
Heyns	5.876	4.578	5.222
Present study	11.733	9.133	9.578

Note: Statistically significant differences between rater means for the Heyns scoring system in the above table are: (1) vs. (2), p less than .05.

Statistically significant differences between rater means for the "present study" scoring system are: (1) vs. (2), p less than .001, (1) vs. (3), p less than .01

APPENDIX Q

MEAN RATINGS BY RATERS AND PERCEPTUAL CATEGORIES FOR DANA'S PERCEPTUAL SYSTEM

	Rater (1)	Rater (2)	Rater (3)
Range	41.47	47.31	45.87
Personalization	29.93	45.56	39.80
Organization	31.55	36.73	32.94
Over-all rater means	22.93	27.31	23.58

Note: Statistically significant differences between over-all rater means in the above table are: (1) vs. (2), p less than .001; (2) vs. (3), p less than .001.

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BIOGRAPHICAL SKETCH

Bigelow Chandler Healy was born September 3, 1930, at Leominster, Massachusetts. In June, 1945, he was graduated from St. Mark's School, Southboro, Massachusetts. In June, 1952, he received the degree of Bachelor of Arts from Harvard College. From 1952 to 1954, he served in the Ordnance Corps of the United States Army and was attached to the Ordnance School. Following his discharge from the army, he entered Boston University, and received the degree of Master of Arts in June, 1956. In September, 1956, he enrolled in the Graduate School at the University of Florida. He was employed as a graduate assistant in the department of psychology from September, 1957, to February, 1960. From February, 1960, until August, 1961, he was employed as assistant psychologist at Sunland Training Center, Gainesville, Florida. From September, 1961, to September, 1962, he served as psychological trainee at the Worcester Youth Guidance Center, Worcester, Massachusetts. From September, 1962, until the present time, he continued his work toward the degree of Doctor of Philosophy.

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This dissertation was prepared under the direction of the chairman of the candidate's supervisory committee and has been approved by all members of that committee. It was submitted to the Dean of the College of Arts and Sciences and to the Graduate Council, and was approved as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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